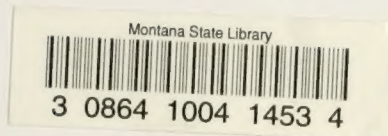


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2007 UPDATE

STATE OF MONTANA MULTI-HAZARD MITIGATION PLAN AND STATEWIDE HAZARD ASSESSMENT

Prepared for:

**The State of Montana
Department of Military Affairs
Disaster and Emergency Services
P.O. Box 4789
1900 Williams Street
Fort Harrison, Montana 59636**

Prepared by:

**Tetra Tech
303 Irene Street
Helena, Montana 59601**

Prepared:

August 2007



FEMA

RVIII - MIT

November 9, 2007

Daniel McGowan, Administrator
Montana Disaster and Emergency Services
1900 Williams Street, P.O. Box 4789
Fort Harrison, MT 59636-4789

Reference: **Approval of the State of Montana Multi-Hazard Mitigation Plan – 2007 Update**

Dear Mr. McGowan:

We are pleased to inform you and the State Hazard Mitigation Team that the Montana Multi-Hazard Mitigation Plan is in compliance with the Federal hazard mitigation planning standards resulting from the Disaster Mitigation Act of 2000, as contained in 44 CFR 201.4. The Plan is hereby approved as a Standard State Plan for a period of three (3) years, to November 9, 2010.

We commend the State of Montana and the State Hazard Mitigation Team for developing a solid, workable plan that demonstrates commitment to reduce risks from natural hazards and that will guide mitigation activities over the coming years. We acknowledge and support the State's intention to regularly review and update the Plan.

A formal Plan update is required at least once every three (3) years. If the Plan is amended or revised, it must be resubmitted to the Federal Emergency Management Agency (FEMA) Region VIII for formal review and approval. If the Plan is not updated prior to the required three (3) year time frame, please ensure that the Draft update is submitted by June 9, 2010, at least six (6) months prior to the expiration of this Plan approval.

By approval of this Plan, the State of Montana is eligible to receive the following assistance provided by the Federal Emergency Management Agency (FEMA):

- Public Assistance (Categories C-G)
- Fire Management Assistance Grants
- Hazard Mitigation Grants
- Pre-Disaster Mitigation Grants
- Flood Mitigation Assistance Grants

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DISASTER & EMERGENCY SERVICES
STATE OF MONTANA

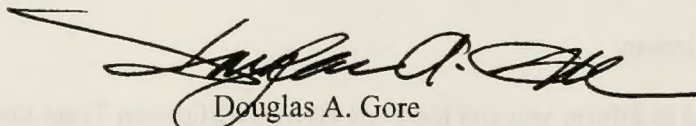
All requests for funding, however, will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted. For example, a specific mitigation activity or project identified in the Plan may not

Daniel McGowan
November 9, 2007
Page 2

meet the eligibility requirements for FEMA funding, and even eligible mitigation activities are not automatically approved for FEMA funding under any of the aforementioned programs.

We commend the State of Montana for its close coordination and communication with our office in the review and subsequent approval of its State Plan. If you have any questions or need any additional information, please do not hesitate to contact Ryan Pietramali at (303) 235-4836.

Sincerely,



Douglas A. Gore
Acting Regional Administrator

cc: Kent Atwood, SHMO

OFFICE OF THE GOVERNOR
STATE OF MONTANA

BRIAN SCHWEITZER
GOVERNOR



JOHN BOHLINGER
LT. GOVERNOR

October 24, 2007

Mr. Douglas Gore
Regional Administrator
Federal Emergency Management Agency Region VIII
Denver Federal Center Bld. 710
P O Box 25267
Denver, CO 80225-0267

Dear Mr. Gore;

Enclosed for your final review and approval is the 2007 Update to the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. As the Governor of the State of Montana, I hereby adopt this plan on behalf of the State of Montana.

Wildfires, floods, severe storms, earthquakes, landslides and other such events are natural occurrences that disrupt and may pose serious hazards to the lives of our citizens. It is our policy to study and learn from past natural hazard events and apply the knowledge gained to our State Mitigation Plan. We believe, and experience has taught us, that acting from a broad information base enhances our ability to reduce the threat of natural disasters to people, property and resources without further adverse impact to the environment. Implementation of the recommendations contained in this plan will contribute greatly to the safety and well being of the citizens of the Big Sky State.

The Montana Disaster and Emergency Services Division prepared the attached plan with the assistance of personnel from State and federal agencies, local governments, private businesses and other stakeholders. Montana State agencies, in accordance with our Montana Emergency Plans and legislation, have been very active in mitigation actions and preparedness as well as response and recovery phases of emergency management. You will find that this plan provides a clear opportunity to work cooperatively and creatively to mitigate damage in future events. We are most proud of the mechanism used to include and incorporate over sixty local Montana county and tribal Pre Disaster Mitigation Plans with their local hazards, risks, mitigation goals and strategies into the State Plan.

The plan identifies and profiles the range of natural hazards affecting the State, assesses the state's risk and vulnerability to natural hazards, examines existing hazard mitigation capabilities, develops statewide mitigation goals and strategies, and establishes a framework for implementing those goals and strategies as well as for monitoring, evaluating and updating the plan.

Subject: [Illegible]

Reference is made to [Illegible]

It is requested that you [Illegible]

Very truly yours,
[Illegible Signature]

Enclosed for [Illegible]

Very truly yours,
[Illegible Signature]

Very truly yours,
[Illegible Signature]

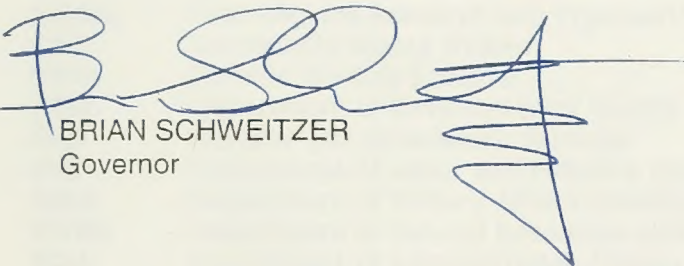
Very truly yours,
[Illegible Signature]

Mr. Douglas Gore
Regional Administrator
Federal Emergency Management Agency Region VIII
October 24, 2007
Page 2 of 2

This plan is in full compliance with the planning requirements of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288 as amended, and the Interim Final Rule (44 CFR Parts 201 and 206), thus keeping the state of Montana qualified to receive funding under all FEMA disaster assistance and hazard mitigation grant programs. Montana will comply with all applicable Federal statutes and regulations in effect with respect to the periods in which it receives grant funding, and will amend its plan whenever necessary to reflect changes in state and federal laws and statutes, as required in 44 CFR 13.11 (c) and (d).

We would like to thank your staff for their extremely valuable guidance and assistance in the completion of this Plan.

Sincerely,



BRIAN SCHWEITZER
Governor

Enclosure:

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
APHIS	Animal and Plant Health Inspection Service
ARM	Administrative Rules of Montana
ARS	Agricultural Research Service
BAER	Burned Area Emergency Rehabilitation
BEA	Bureau of Economic Analysis
BIA	Bureau of Indian Affairs (U.S.)
BLM	Bureau of Land Management (U.S.)
BOR	Bureau of Reclamation (U.S.)
BSE	Bovine Spongiform Encephalopathy
CAP	Community Assistance Program
CDC	Centers for Disease Control
CGS	Colorado Geologic Survey
CJD	Creutzfeldt-Jacob Disease
CoCoRaHS	Community Collaborative Rain, Hail, Snow Network
COE	United States Army of Corps of Engineers
COFR	Council of Foreign Relations
COG	Continuity of Government
COOP	Continuity of Operations Plan
CPFM	Community Protection Fuels Mitigation
CRP	Conservation Reserve Program
CRREL	Cold Regions Research and Engineering Laboratory
CRS	Community Rating System
CWD	Chronic Wasting Disease
DEQ	Department of Environmental Quality (Montana)
DES	Disaster and Emergency Services
DLI	Department of Labor and Industry (Montana)
DMA	Department of Military Affairs (Montana)
DNRC	Department of Natural Resources and Conservation (Montana)
DOA	Department of Administration (Montana)
DOT	Department of Transportation (U.S.)
DPHHS	Department of Public Health and Human Services (Montana)
E. coli	Escherichia coli O157:H7
EAS	Emergency Alert System
EF	Enhanced Fujita
EIA	Energy Information Administration
EO	Executive Order
EPA	Environmental Protection Agency (U.S.)
EMPG	Emergency Management Performance Grant
EQIP	Environmental Quality Incentive Program
EWPP	Emergency Watershed Protection Program
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FLCTT	Federal Laboratory Consortium for Technical Transfer
FMA	Flood Mitigation Assistance
FMA	Fire Management Assistance
FMAG	Flood Mitigation Assistance Grants
FMD	Foot-and-Mouth Disease
FSA	Farm Service Agency
FSA	Federal Suppression Assistance
FWP	Department of Fish, Wildlife and Parks
FY	Fiscal Year

LIST OF ACRONYMS (CONTINUED)

GIS	Geographic Information Systems
GSP	Gross State Product
HIV	Human Immunodeficiency Virus
HMGP	Hazard Mitigation Grant Program
HPAI	High-Pathogenicity Avian Influenza
HPS	Hantavirus Pulmonary Syndrome
HPLF	High Potential Loss Facilities
HUD	Department of Housing and Urban Development
IA	Individual Assistance
IBC	International Business Code
ICBM	Inter-Continental Ballistic Missiles
IPM	Integrated Pest Management
IRC	International Residential Code
IT	Information Technology
IWW	International Workers of the World
LEPC	Local Emergency Planning Committee
LQG	Large Quantity Generator
LRBP	Long Range Building Program
MACo	Montana Association of Counties
MBMG	Montana Bureau of Mines and Geology
MCA	Montana Code Annotated
MDES	Montana Disaster and Emergency Services
MDNRC	Montana Department of Natural Resources and Conservation
MDPHHS	Montana Department of Public Health and Human Services
MDT	Montana Department of Transportation
MRI	McLaughlin Research Institute
MRL	Montana Rail Link
MSU	Montana State University
NCDC	National Climatic Data Center
NDD	Natural Disaster Determinations
NDMC	National Drought Mitigation Center
NEMIS	National Emergency Management Information System
NEPA	National Environmental Policy Act
NFP	National Fire Plan
NFIP	National Flood Insurance Program
NIAID	National Institute of Allergy and Infectious Diseases
NID	National Inventory of Dams
NIFC	National Interagency Fire Center
NIMS	National Incident Management System
NISEE	National Information Service for Earthquake Engineering
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service (U.S.)
NRC	National Response Center (U.S.)
NRCS	Natural Resource Conservation Service (U.S.)
NRIS	Natural Resource Information System (Montana)
NTSB	National Transportation and Safety Board
NWR	NOAA Weather Radio
NWS	National Weather Service (U.S.)
PCIIS	Property Casualty Insurance Information System
PA	Public Assistance
PCIIS	Property Casualty Insurance Information System
PDM	Pre-Disaster Mitigation

LIST OF ACRONYMS (CONTINUED)

PHDI	Palmer Hydrologic Drought Index
RFA	Rural Fire Assistance
RL	Repetitive Loss
RML	Rocky Mountain Laboratories
SARS	Severe Acute Respiratory Syndrome
SBA	Small Business Administration
SHMO	State Hazard Mitigation Officer
SHMT	State Hazard Mitigation Team
SRL	Severe Repetitive Loss
TERC	Tribal Emergency Response Committee
TPO	Tornado Project Online
TRI	Toxics Release Inventory
UM	The University of Montana
USACE	United States Army of Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USFS	United States Forest Service
USDOC	United States Department of Commerce
USDOT	United States Department of Transportation
vCJD	Variant-Creutzfeldt-Jacob Disease
VS	Vesicular Stomatitis
WMD	Weapons of Mass Destruction
WNV	West Nile Virus
WPDG	Wetland Program Development Grant
WUI	Wildland/Urban Interface
WWUI	Western Wildland Urban Interface
YPN	Yellowstone ParkNet

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1.0 INTRODUCTION

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment is the State's primary hazard mitigation document. It is the product of extensive input from governmental and tribal agencies, non-governmental organizations, in-depth research, and hazards analysis. The results are stand-alone sections, statewide in nature, useful for many entities throughout the State of Montana, and expandable as events occur and better data is developed. The document is organized into several major parts, establishes a process for broad governmental and organizational involvement, provides a comprehensive and detailed statewide hazard assessment, and demonstrates the overarching mitigation strategy for the State of Montana.

Section 2 contains a discussion of the Planning Process utilized for development of this document and the integration of this document with other State Plans and Programs.

Section 3, the Hazard Assessment, identifies and profiles the following major hazards in Montana:

- Communicable Disease
- Earthquake
- Flooding
- Hazardous Materials Incidents
- Landslide
- Terrorism and Violence
- Volcanic Eruptions
- Winter Storms and Avalanche
- Drought and Effects of Drought
- Severe Thunderstorms, Hail, Wind and Tornadoes
- Wildland and Rangeland Fires

The history of occurrence, the probability of occurrence, the severity resulting from, and the vulnerability to each of these hazards is individually discussed. Where possible, data is mapped to show vulnerability by jurisdiction, and in particular, to state-owned facilities. For greater detail by jurisdiction, local data was incorporated where practicable and available. Local Hazard Mitigation Plans are (both approved and draft versions) linked electronically to this document.

Section 4, the Mitigation Strategy, looks at overall mitigation in Montana and pulls together various factors including: statewide goals and objectives; mitigation projects from the local plans, projects being considered by the state, and specific statewide projects; a prioritized list of state-specific mitigation projects; state and local capabilities; and, funding sources. The mitigation strategy considers the natural and man-made events identified in the hazard assessment and proposes potential solutions with a method and means for following those potential solutions through project completion. The mitigation strategy does not establish or redefine mitigation in Montana, but rather provides a comprehensive look at the system for achieving disaster resistance.

Section 5 contains a discussion of the status of Hazard Mitigation Planning Efforts at the local levels, technical and financial assistance available, integration of the approved Local Hazard Mitigation Plans into the State's Plan and the approach utilized by the State to prioritize proposed mitigation projects.

Section 6 discusses Plan Maintenance/Update and Mitigation Project Monitoring/Evaluation procedures, and **Section 7** consolidates references utilized in the Plan.

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment strives to clearly identify and profile the hazards that pose the greatest threat to the state and prevent damages and losses in the future. The ultimate objective is to make the State of Montana a safer place to live, work, and visit.

This document comprises the 2007 Update to the State of Montana's Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. It has been prepared for the State of Montana, Department of Military Affairs-Disaster and Emergency Services Division by Tetra Tech Inc., under Contract No. MIL07- 13730 executed on November 14, 2006 under the direction of the State Hazard Mitigation Officer (SHMO). The original document was prepared by Resource Management Services, Inc. (Prime Contractor), Land and Water Consulting (Sub-contractor), and Big Sky Hazard Management, Inc. (Sub-contractor) under Contract No. MIL04-785J executed on November 10, 2003.

1.1 PURPOSE, SCOPE, AND AUTHORITY

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment was developed with the purpose of documenting historical hazard events and vulnerabilities, and strategies for mitigation that will make Montana a more disaster resistant State. This comprehensive and resourceful document is intended to clarify hazard information and actions that can be taken to prevent damages. As is the case with all disaster plans, this Plan does not identify or list every possible hazard. Furthermore, events listed may not occur in the manner identified. The Plan is a tool that should be used to enhance the State's preparedness to the events listed.

The authority governing the Plan's development and contents is Section 322 (Mitigation Planning) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390). Specifically, the plan is to meet the requirements of the Interim Final Rule published in the Federal Register on February 26, 2002 at 44 CFR Part 201. Meeting these requirements will allow the state and communities with approved local plans to apply for federal mitigation assistance, both pre- and post-disaster.

The scope of this Plan is to meet the required elements of a Standard Level State Plan with the potential to expand to an Enhanced Plan at a future date. The development of this Plan was limited by the time and funding available. Funding for the initial development of the plan was provided by the Federal Emergency Management Agency through the Pre-Disaster Mitigation (PDM) grant program in Fiscal Year 2003. The subsequent three year update, as required by the Disaster Mitigation Act of 2000, was funded through the FEMA PDM-C 2006 grant program. The scope of the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment will continue to expand over time and will be dictated by the available funding and by the availability of more information.

1.2 STATE OVERVIEW

Montana is a large, sparsely-populated State with an economy that has historically depended on natural resource-linked industries. The open plains of central and eastern Montana provide land for grain farming, grazing for large herds of beef cattle, oil and gas fields, and rich coal deposits. The mountainous regions of western Montana yield timber for wood products manufacturing and minerals for mining. Recent years, however, have seen the state relying less on its natural resources, and branching out into a more diversified economy.

The Continental Divide runs through Montana along the crests of the Rocky Mountains from Canada to Mexico, literally dividing the waters of the North American Continent. Montana is known as the headwaters state because much of the water which flows to the rest of the nation comes from the mountains of Montana. Two of the nation's major river systems, the Missouri and Columbia, are born high in the Rocky Mountains of Montana. **Table 1.2-1** presents Montana State Facts and **Table 1.2-2** presents the Montana State Symbols.

Information presented in this section has been compiled by the Research and Analysis Bureau, Workforce Services Division, Montana Department of Labor and Industry and additional information can be found at <http://rad.dli.state.mt.us/pubs/mtfacts.asp>.

Table 1.2-1 Montana State Facts

Admitted to the United States:	Nov. 8, 1889, the 41 st state
Population:	944,632 (2006 Census estimate) According to the 2006 Census, Montana has 6.2 persons per square mile and is the 44 th most populous state
Capital City:	Helena, population is 25,780 (2000 Census estimate)
Largest City:	Billings, population is 89,847 (2000 Census estimate)
State Name:	"Montana" is from the Latin word for "mountainous region"
Size:	147,046 square miles in total area 145,556 square miles in land area 1,490 square miles in water area 94,109,440 total acres 4 th largest state Greatest distance from East to West Boundary: approx. 550 miles Greatest distance from North to South Boundary: approx. 320 miles in western Montana and approx. 280 miles in eastern Montana
USGS Physiographic Regions:	Rocky Mountain Region in the west; Great Plains in the east
Number of Counties:	56
Number of Tribal Reservations:	7
Number of Incorporated Cities and Towns:	126
Longitude and Latitude:	Between 44 degrees 26' and 49 degrees North Latitude and 104 degrees 2' and 116 degrees 2' West Longitude
Highest Point:	12,799 feet (3,901 meters) above sea level at the summit of Granite Peak in Park County near the south central boundary
Lowest Point:	1,820 feet in Lincoln County in the northwest corner where the Kootenai River enters Idaho
Mean Elevation:	3,400 feet
Total Land Area:	145,552 square miles
Length of Canada/ US Border	545 miles

Table 1.2-2 Montana State Symbols

Nickname:	Treasure State Montana is also known as Big Sky Country, Land of the Shining Mountains, Mountain State, Bonanza State, and Headwaters State.
State Animal:	Grizzly Bear
State Bird:	Western Meadowlark
State Fish:	Blackspotted Cutthroat Trout
State Flower:	Bitterroot
State Fossil:	Duck-billed dinosaur (<i>Maiaasaura Peedblesorum</i>)
State Gemstones:	Sapphire & Agate
State Grass:	Bluebunch Wheatgrass
State Tree:	Ponderosa Pine
State Butterfly:	Mourning Cloak
State Song:	"Montana"--written one night by a Montana newspaper editor and famous songwriter in 1910
State Ballad:	"Montana Melody"--Montana is one of few states to have a state song and ballad

Climate Extremes

The world record for a 24-hour temperature change occurred in Loma, Montana (Chouteau County) on January 15, 1972. The temperature rose 103 degrees, from -54°F to 49°F. The coldest temperature ever recorded in Montana was -70°F at Rogers Pass north of Helena (Lewis & Clark County), on January 20, 1954, a national record for the lower 48 states. Montana has reached 117°F twice in recorded history – the first time in Glendive (Dawson County) on July 20, 1893 and then again in Medicine Lake (Sheridan County) on July 5, 1937. **Tables 1.2-3, 1.2-4 and 1.2-5** show the five hottest places, the five wettest places, and the five coldest places in Montana, respectively.

Table 1.2-3 The Five Hottest Places in Montana

Location	County	Average Daily High in July
Hardin	Big Horn	91.7°F
Yellowtail Dam	Big Horn	90.7°F
Lame Deer	Rosebud	89.9°F
Birney	Rosebud	89.9°F
Hysham	Treasure	89.6°F

Notes: Based on maximum normal temperatures from 1961-1990 for reporting weather stations¹

¹ James R. Owenby and D. S. Ezell, Monthly Station Normals of Temperature, Precipitation, and Heating and Cooling Degree Days, 1961-90, Montana. Asheville, N.C.: National Climatic Data Center, 1992.

Table 1.2-4 The Five Wettest Places in Montana

Location	County	Average Annual Precipitation
12 miles northeast of Bozeman	Gallatin	35.15 inches
18 miles north of Troy	Lincoln	34.90 inches
Hungry Horse	Flathead	34.48 inches
2 miles northwest of Heron	Sanders	33.86 inches
Hebgen Dam	Gallatin	30.11 inches

Notes: Based on annual precipitation normals from 1961-1990 for reporting weather stations near populated areas¹

Table 1.2-5 The Five Coldest Places in Montana

Location	County	Average Daily Low in January
Westby	Sheridan	-5.8°F
10 miles north of Opheim	Valley	-3.3°F
12 miles southeast of Opheim	Valley	-2.9°F
Redstone	Sheridan	-2.7°F
Culbertson	Roosevelt	-2.0°F

Notes: Based on minimum normal temperatures from 1961-1990 for reporting weather stations¹

Population

Montana's population breakdown is described in the following three tables. **Table 1.5-6** presents Montana's rank compared to the other 50 States. **Table 1.5-7** presents the racial makeup of Montana's population. **Table 1.5-8** presents provides statistics on Montana's tribal governments.

Table 1.5-6 Montana's Ranking Among the 50 States²

Item	Rank	Montana	U.S.
Total Population (2006 Census Estimate)	44th	944,632	299,398,484
Population per Square Mile (2000 Census)	48 th	6.2	79.6
Percent Change in Population (1990-2000)	20 th	12.9%	13.1%
Percent Population Under 18 Years of Age (2003 Census Estimate)	42 nd	23.5%	25.1%
Percent Population 65 Years and Older (2003 Census Estimate)	10 th	13.6%	12.4%
Median Age in Years (2000 Census)	6 th	37.5	35.3
Home Ownership Rate (2000 Census)	26 th (tie)	69.1%	66.2%
Public High School Graduation Rate (2000 Census)	10 th	78.0%	67.0%
Per Capita Income (2003 Census Estimate)	44 th	\$25,920	\$31,632

² Montana Department of Labor and Industry, Workforce Services Division, Research and Analysis Bureau, June 2002.

Table 1.5-7 Montana's Racial Makeup³

Race	Number of Persons	Percent of Total MT Population
White	817,229	90.6%
American Indian, Eskimo, or Aleut	56,068	6.2%
Hispanic	18,081	2.0%
Asian or Pacific Islander	5,161	0.6%
Black	2,692	0.3%
Other	5,315	0.6%

Table 1.5-8 Tribal Governments^{4,5,6}

Names and Reservation Headquarters	Date Established	Resident Tribes	Indians on Reservation (2000 Census)	Enrolled Tribal Members	Non-Indians on Reservations
Blackfeet Browning, MT	1851	Blackfeet	8,507	15,300	16%
Crow Crow Agency, MT	1851	Crow	5,165	9,000	25%
Flathead Pablo, MT	1855	Salish Kootenai	6,999	6,900	73%
Fort Belknap Harlem, MT	1888	Assiniboine Gros Ventre	2,790	4,000	6%
Fort Peck Poplar, MT	1888	Assiniboine Sioux	6,391	11,000	38%
Northern Cheyenne Lame Deer, MT	1884	Northern Cheyenne	4,029	7,900	10%
Rocky Boy's Box Elder, MT	1916	Chippewa- Cree	2,578	4,700	4%
Little Shell* Great Falls, MT	2000	Chippewa- Cree	N/A	4,000	N/A

Notes: *The Little Shell Tribe does not have a reservation.

³ Data compiled by U.S. Bureau of the Census, Washington, D.C., 2000, and processed by the Census and Economic Information Center of the Montana Department of Commerce, August 2000.

⁴ The Tribal Nations of Montana, A Handbook for Legislators, Helena, MT, Legislative Council, 1995

⁵ Montana Indians: Their History and Location, Helena, MT, Office of Public Instruction, 1989

⁶ US Census Bureau, 2000

2.0 PLANNING PROCESS

2.1 PLANNING PROCESS DOCUMENTATION

The planning process for the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment (Plan) was designed and developed to maximize participation and information exchange during its development. To initiate the update process, the State of Montana, Department of Military Affairs, Disaster and Emergency Services (DES) via Contract No. MIL07-13730 (executed on November 14, 2006) retained Tetra Tech, Inc. The Contractor spearheaded and implemented the planning initiative under the direction and guidance of the State Hazard Mitigation Officer (SHMO).

A system for completing the necessary elements of a Standard State Mitigation Plan was created to provide an efficient way for participants to become active in the planning process and to facilitate an informational exchange of the most current data and programs throughout the State. During development of the original plan the planning process was focused on an Advisory Group, Hazard Technical Groups, and Stakeholders Group. During the plan update, the planning process was focused on local jurisdictions and the Stakeholders Group.

2.1.1 Advisory Group

An Advisory Group was designated as the main steering committee to develop the 2004 Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. The members of this Advisory Group were selected based on their expert knowledge of hazards and/or their active role in mitigation activities in Montana. **Appendix A** contains a list of the various Agencies represented in the Advisory Group. The Advisory Group's main objective was to guide the planning process and to oversee the development of Multi-Hazard Mitigation Plan and Statewide Hazard Assessment to ensure consistency across hazards. This group met formally at the beginning of the planning process and reviewed items as necessary throughout the process.

2.1.2 Stakeholders Group

A much larger Stakeholders Group was created to include multiple organizations, including federal, tribal, state, and local governmental agencies or associations, businesses, non-profit organizations, utilities and trade associations. All state departments were specifically invited to group meetings via invitation letters and/or e-mails. The Stakeholders Group represents a cross-section of private and public groups that have interests in mitigating the impacts of hazards and risks. Many of the participating stakeholders represent the entire state through their position and through their academic interests. Others hold key positions intended to represent the best interests of the public that they serve.

Stakeholder involvement for the State Plan Update included a kick-off meeting in Helena on April 19, 2007. The original Stakeholders list was updated and invitations were sent by regular mail requesting attendance at the half-day meeting. The meeting entailed a briefing on the State Plan Update, presentations by several guest speakers, a review of hazard risk maps and two exercises aimed at updating mitigation goals and objects. Guest speakers included experts on earthquakes by the Montana Bureau of Mines and Geology, wildfire by the Montana Department of Natural Resources and Conservation (DNRC), flooding by the Montana Floodplain Association, and severe weather by the National Weather Service

(NWS). Additionally, a representative from the Federal Emergency Management Agency (FEMA) Region 8 delivered comments on State Plan Update guidelines and requirements. A second meeting of the 2007 Stakeholders Group was held on August 8, 2007 to gather input on review the draft State Plan Update.

Members of the 2007 Stakeholders Group are listed in **Appendix A**. Since approval of the previous State Plan, there has been an increase in mitigation planning efforts among federal and state agencies. An atmosphere of cooperation and collaboration has emerged due in part to the involvement of these agencies in Local PDM Plan review, an awareness of the importance of mitigation, and the recognition that PDM-C grant funds are available for hazard mitigation projects.

2.1.3 Hazard Technical Groups

Hazard Technical Groups were created to address specific hazard profiles developed for the 2004 version of the State Plan. Members of the Stakeholders Group were invited to participate in the Hazard Technical Groups for those hazards or topics on which they have expert knowledge of, supplemental information on, or a general interest in. The Hazard Technical Groups provided data, history, hazard information, and mitigation ideas for specific hazards and reviewed hazard profiles and mitigation measures. These groups communicated with the Team of Contractors and each other via e-mail and small group meetings. Members of each Hazard Technical Group are listed in **Appendix A**.

The original Hazard Technical Groups were not reconvened for the 2007 update. A small group of specialists were enlisted to help profile a new hazard added to the 2007 Update to the State Plan; Communicable Disease. Representatives from the Montana Department of Livestock, Department of Agriculture, and Department of Public Health and Human Services contributed the expertise in profiling this new hazard. Additionally, several hazards profiled for the 2004 version of the State Plan were expanded during the update process. Members of the original Hazard Technical Groups were enlisted to review revised sections of these hazard profiles.

2.1.4 Local Involvement

Public involvement to the level that is required for Local Pre-Disaster Mitigation Plans (Local PDM Plans) was not feasible at the state level during development of the 2004 version of the Montana State Plan. At that time, only six Local PDM Plans had been approved by FEMA; five county plans and one tribal plan. The majority of the other jurisdictions in the State of Montana were completing their PDM plans at the same time the State Plan was being developed. Therefore, local input to the state planning effort was limited in 2004. Integration of the Local PDM Plans into the State Plan occurred to the extent possible (i.e., where statewide concepts exist).

At the time of the 2007 State Plan Update, 43 Local PDM Plans had been approved by FEMA (41 county plans and two tribal plans) and 20 plans were in the advanced drafting stage (15 county plans and five tribal plans) **Figure 2.1-1** illustrates the status of Montana's PDM planning effort.

Figure 2.1-1 Status of PDM Planning Efforts in Montana

Montana Pre-Disaster Mitigation (PDM) Program
19 June 2007

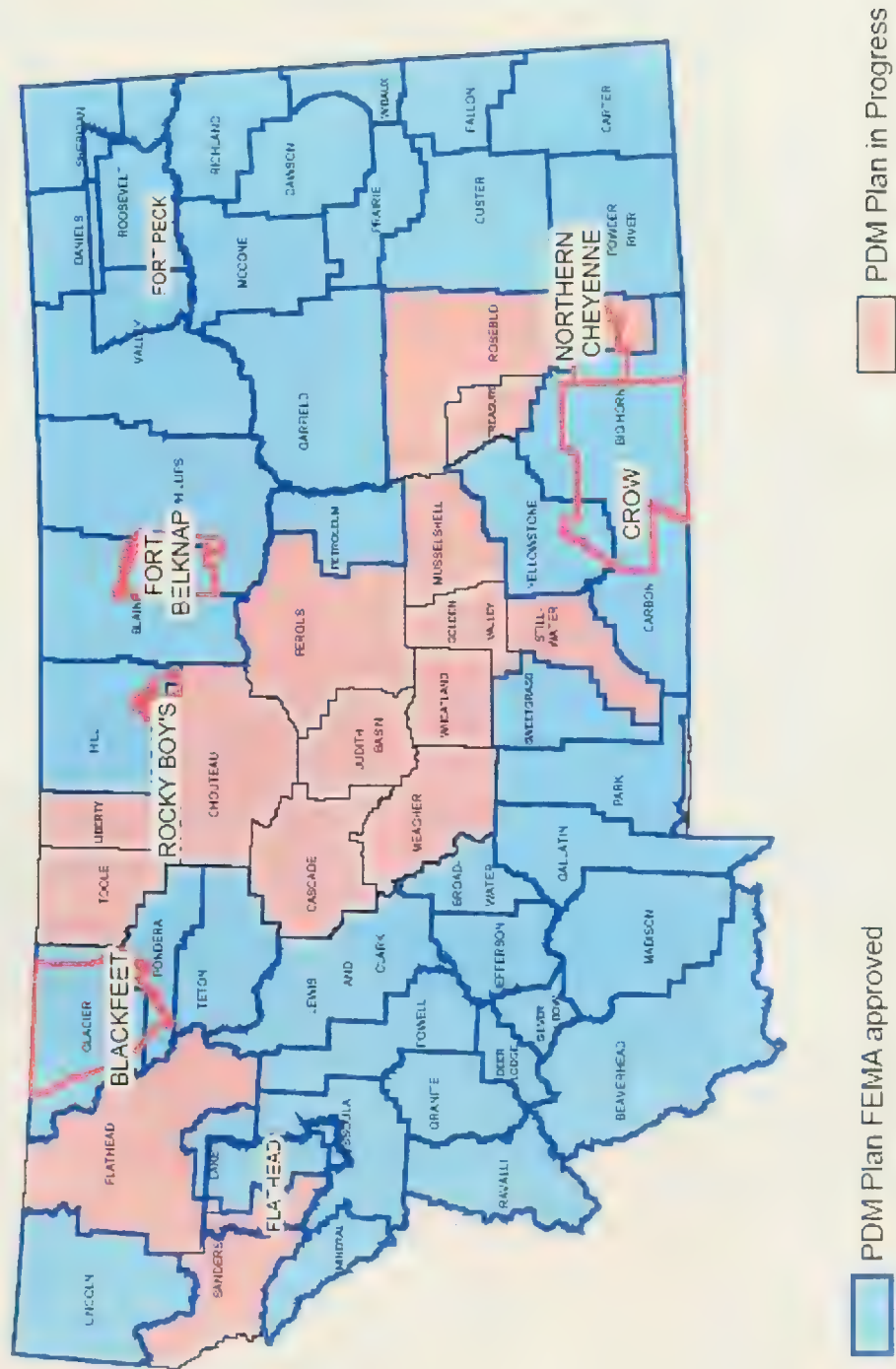
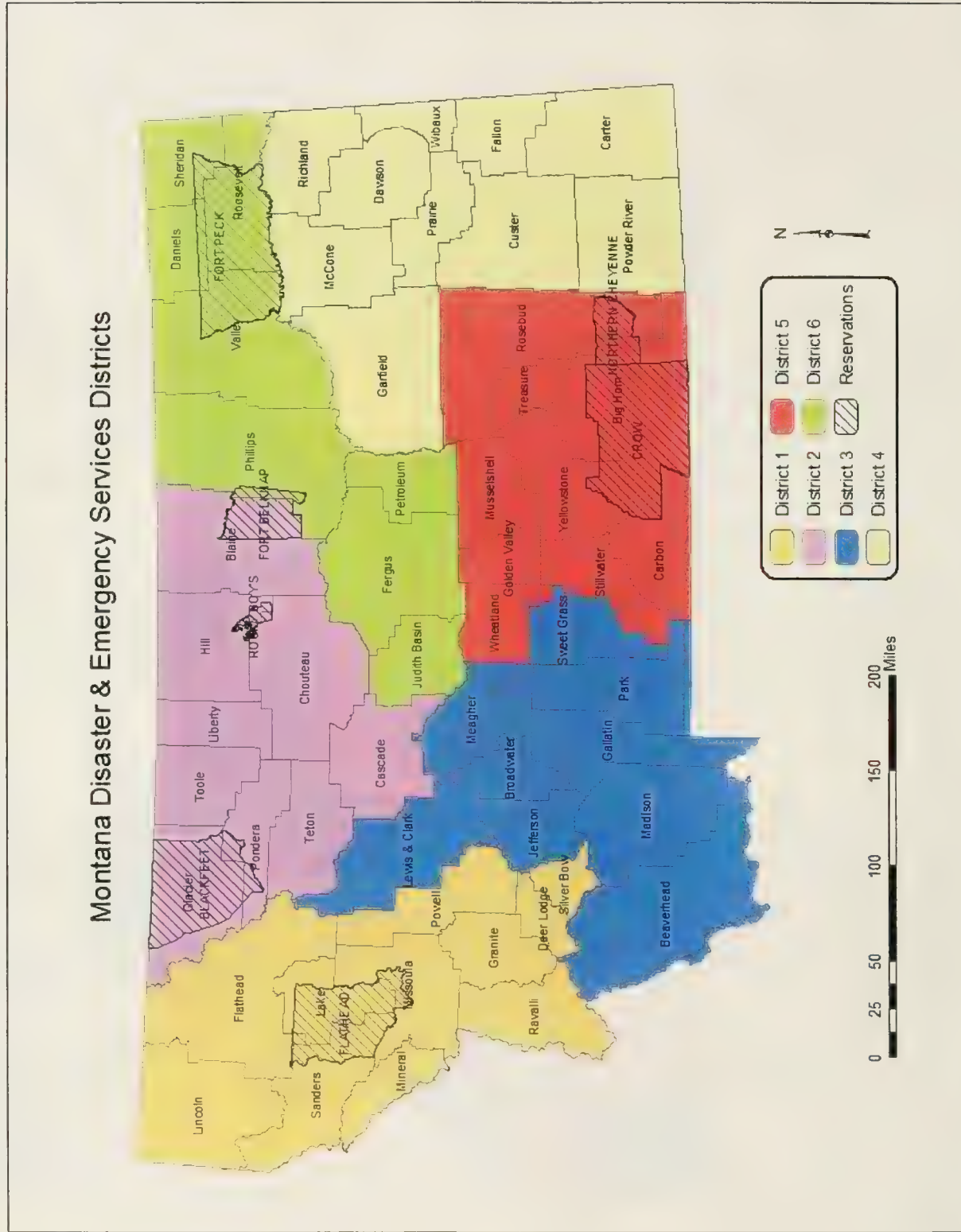


Figure 2.1-2 Montana Disaster & Emergency Services Districts



The Montana DES organization is broken into six geographical districts (**Figure 2.1-2**). Each district has a state District Representative who acts as a liaison between the state office and the local coordinators. The State Plan Update effort involved hosting meetings in 12 locations around the state to gather input on the local level. In general, two meetings were held in each DES District. District 1 meetings were held in Missoula and Polson. District 2 meetings in Cut Bank and Havre. District 3 meetings in Helena, Dillon, and Bozeman. District 4 meetings in Miles City and Sidney. The District 5 meeting was held in Billings. District 6 meetings were held in Wolf Point and Lewistown. The District 1 meeting held in Polson coincided with a Tribal Hazardous Material Conference which captured the participation of many tribal entities and well as local DES coordinators.

A press release announcing the local meetings was published in local newspapers around the state and e-mailed to DES coordinators in all districts requesting they invite appropriate stakeholders to attend the State Plan Update meetings. Meeting participants included district and local DES coordinators, representatives from city/county/tribal government, federal agencies, elected officials, utilities, private businesses and members of the public. An appendix to this document has been compiled to document the planning effort for each DES District. Sign-in sheets from the local meetings are presented in **Appendices B through G**, which correspond to DES Districts 1 through 6, respectively.

Local meetings included a briefing on the State Plan Update process, a review of hazards currently profiled in the State Plan, a review of District Risk Maps (*see description below*), a discussion on new hazards affecting the area, conversations on growth and development trends, a review of existing mitigation goals, and a brainstorm session on state-wide mitigation projects that could reduce the affect of future hazard events. Most meetings were two hours in duration. Meeting minutes are presented for DES Districts 1 through 6 in **Appendices B through G**, respectively.

In advance of the meetings, the Contractor reviewed a total of 59 Local PDM Plans (including 15 draft county plans and 5 draft tribal plans) and developed Risk Maps displaying a high-medium-low risk rating for each of the ten hazards profiled in the 2004 version of the State Plan. Since the Local PDM Plans had a variety of authors using different methodologies it was difficult to compare the different hazard rankings and/or prioritization schemes to derive a uniform risk factor; therefore, "draft" Risk Maps were presented at the local meetings for concurrence that the jurisdictions' hazard risks were captured accurately, or to see what changes needed to be made. This exercise was not intended to update the Local PDM Plans, but to verify that the Contractor had interpreted the intent of the existing Local PDM Plans accurately.

2.1.5 Project Web Page and On-Line Survey

The 2007 State Plan Update included a project web page hosted on the Montana DES website (<http://206.127.65.86/StatePlan/>). The web page included reference materials, scheduled meetings, meeting minutes, stakeholder and meeting participant lists, Risk Maps, local mitigation strategies, draft plan revisions, and forms relevant to the State Plan Update process. The web page provided the general public a way to keep informed on the project as well as opportunities to provide meaningful input on the mitigation strategy for the State of Montana.

The project web page also included an interactive survey designed to capture the input of federal and state agencies, county and tribal jurisdictions, businesses, non-profit organizations, and other interested parties on the state-wide mitigation strategy. The survey included the following questions:

- What jurisdiction type do you represent?
- What County/Tribal Community do you represent or as a private citizen where do you live?
- Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment?
- How would you rate the overall quality and content of the Plan?
- Do you feel the plan accurately portrays natural and man-made hazards in Montana?
- What improvements do you think could be made to the plan?
- From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards. Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction.
 - communicable disease
 - drought, earthquake
 - flooding/dam failure
 - hazardous material incidents
 - landslides
 - terrorism/violence,
 - thunderstorm wind/hail/tornadoes
 - volcanic eruption
 - wildfire
 - winter storms/avalanche
- Please comment on the impact that future development will have on the hazards listed above, from the perspective of your jurisdiction:
- Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=highest / 10=lowest):
 - Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards
 - Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities
 - Reduce the Community Impacts of Wildland and Rangeland Fires
 - Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)
 - Minimize Economic Impacts of Drought
 - Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)
 - Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)
 - Reduce Potential Earthquake Losses in Western Montana
 - Reduce Losses from Hazardous Material Incidents
 - Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards
- Please indicate any additional Goals you think should be added to the State Plan.

The remainder of the survey focused on ranking mitigation projects and objectives by goal. A write-in box was provided for additional mitigation projects the respondent thought should be included in the State Plan Update.

To launch the survey a press release was distributed to the media describing the intent of the survey. Follow-up telephone calls and/or e-mails encouraged project stakeholders to complete the survey. For individuals without access to the internet, the survey was available in hard copy from the State Hazard Mitigation Officer.

A cross-section of the State's population completed the survey. Out of the 200 survey respondents, 41 percent represented a county jurisdiction, 13 percent represented the State, 8 percent represented a federal agency, 5 percent were from a utility, 9 percent were from the general public, and 3 percent represented a tribe. The "other" category included 26 percent of the survey respondents and represented fire districts, cities, the Red Cross, private colleges, and healthcare providers. Survey results compiled by DES District are presented in **Appendices B through G** and are discussed further in *Section 4.0*. Survey results were an important tool used to prioritize mitigation goals, objectives, and projects for the State Plan Update.

2.1.6 Plan Review and Adoption Process

A preliminary draft of the State Plan Update was provided to project stakeholders in advance of the August 8th plan review meeting held in Helena. The draft document was issued with line numbers on each page so reviewers could accurately provide direction/recommendations for text additions or deletions. Commenters were provided a spreadsheet to use to track their comments. All comment forms were submitted to the Montana State Hazard Mitigation Officer (SHMO), who reviewed the comments and reconciled any conflicting comments. The SHMO provided the Contractor with a consolidated list of comments giving direction on what to change in the preliminary draft document. Since the State Plan Update provides electronic linkage to Local PDM Plans, the preliminary draft document was provided to project stakeholders on CD. The document was also available on the DES website (<http://206.127.65.86/StatePlan/>).

The Contractor then prepared a revised draft document for FEMA review. A 45-day review period provided FEMA the opportunity to scrutinize the proposed Update to the Montana State Plan and offer comments on recommended changes. The review period was also used to get comments from the public on the draft plan. A press release was prepared and public notices were purchased in the five primary Montana newspapers announcing the document review period and availability of the draft Montana State Plan Update on the DES website. The press release encouraged the public to review the draft document and described how to provide comments. Upon receipt of comments from both FEMA and the public, the SHMO provided direction to the Contractor on changes needed and a final document was prepared.

Review of the preliminary and revised drafts of the 2007 State Plan Update provided an additional opportunity for the public to participate in the planning process. Through these methods, the citizens of Montana were directly and indirectly considered and valued during the development of this Plan.

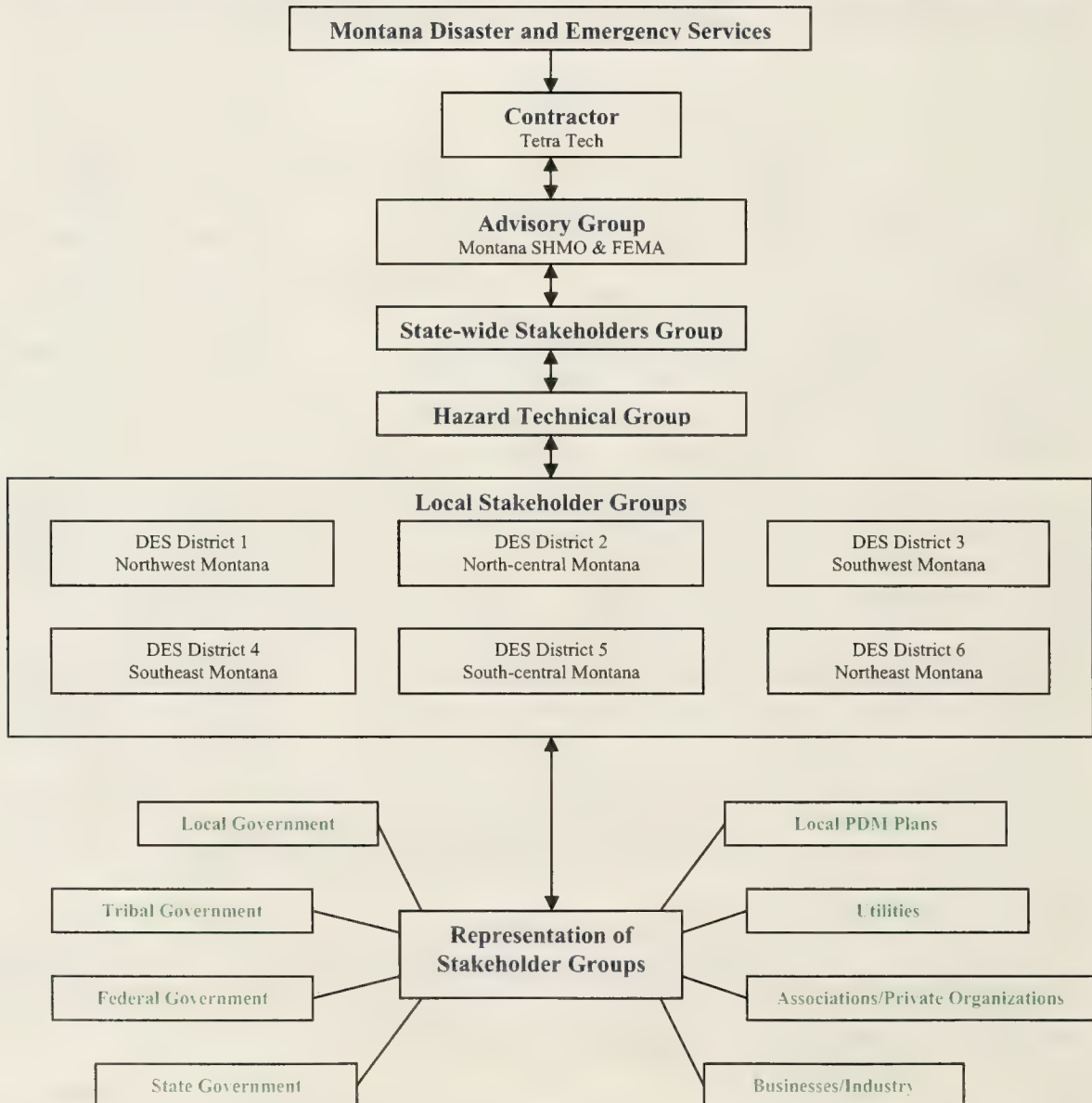
The final Plan was formally adopted by the Governor of the State of Montana. The adoption of the Plan by the Governor demonstrates the State's continued commitment to fulfilling the mitigation objectives outlined in the plan, legitimizes the plan, and authorizes the responsible agencies identified to execute their responsibilities. A copy of the resolution of adoption will be submitted to FEMA for final approval.

The resolution adopting the updated plan includes assurances that the State of Montana will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it received grant funding, in compliance with 44 CFR 13.11c. The State Plan will be amended whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11d.

2.1.7 Plan Update Process

The planning structure followed for development of the State Plan Update allowed for individuals to have as much or as little involvement as they chose, thus maximizing the overall span of organizations involved. **Figure 2.1-3** depicts the participation structure. This structure was used for all aspects of the plan update to solicit statewide and local input and to ensure adequate representation without overburdening individual participants.

Figure 2.1-3 Planning Process Organizational Structure for 2007 State Plan



The Contractor, in consultation with the State Hazard Mitigation Officer (SHMO) and project Stakeholders, reviewed and analyzed each section of the plan as part of the update process in accordance with the following procedures.

Section 1.0 – Introduction: Review introductory materials and update as needed.

Section 2.0 – Planning Process: Provide explanation of planning activities conducted for update process. Evaluate coordination efforts between federal and state agencies as well as businesses, non-profits and other interested parties in the update process.

Section 3.0 – Hazard Assessment: Examine existing hazard profiles and determine whether changed conditions have affected risk assessment. Identify new hazards that should be considered in State Plan Update. Determine whether State's vulnerability has changed based on local plan and state risk assessments. Evaluate whether changes in development has affected jurisdictions in hazard prone areas.

Section 4.0 – Mitigation Strategy: Review current mitigation strategies and determine whether they adequately guide selection of mitigation activities. Establish whether existing goals remain valid or should be revised. Analyze state and local hazard management practices and determine whether capabilities have changed.

Section 5.0 – Plan and Project Coordination: Review methods of providing technical assistance and funding to implement mitigation strategies and update as needed. Evaluate state plan integration process and determine whether integration with FEMA programs and initiatives has occurred. Analyze project prioritization criteria and propose alternate methods as needed to account for high risk, repetitive loss, and development pressures.

Section 6.0 – Plan Maintenance Procedures: Review current procedures to determine effectiveness in evaluating and maintaining the State Plan. Identify alternate procedures if plan has not been adequately maintained since the last update cycle. Review process for monitoring and evaluating projects and develop alternate methods as needed to track the initiation, status, and completion of mitigation activities.

A mechanism for tracking revisions to the State Plan was developed as part of the 2007 update process. A Revision Form was completed for each section of the document indicating what revisions were made as part of the update process. An entry was logged-in for all additions or deletions to the 2004 State Plan including the date of the change and by whom the change was made. These Revision Forms should be maintained as part of subsequent revisions to the Montana State Plan. **Appendix H** contains the Revision Log Forms completed for the 2007 update to the Montana State Plan.

2.1.8 Planning Goals and Anticipated Outcomes

Goals and outcomes specific to the planning process were developed at the first Stakeholders meeting in 2004. Individuals presented and discussed their goals for the plan's development. The participants felt these goals and outcomes would make the hazard assessment and mitigation plan useful and ensure a successful end product for both state agencies and local mitigation specialists. These planning goals remained appropriate for the 2007 State Plan Update process. The planning goals are summarized as follows:

Planning Goal #1: Utilize local input to the maximum extent possible. *Local input is critical to the success, accuracy, and usefulness of the plan.*

Planning Goal #2: Create a Multi-Hazard Mitigation Plan and a Statewide Hazard Assessment that is a working, living document that can be continuously updated. *The initial development of the document is just the starting point. It needs to be flexible to allow for expansion and must be easily maintainable. The Plan must be accurate, concise and well written. Simplicity and usability are important.*

Planning Goal #3: Integrate Local Pre-Disaster Mitigation Plans to avoid repetition, to provide continuity, and to underscore the importance of the Local Plans. *Local PDM plans are ultimately annexes to the state plan.*

Planning Goal #4: Encourage continuous mitigation outreach, education, and technical assistance to the local DES coordinators and elected officials throughout the planning process and beyond. *Planning should be a grassroots effort that fosters local collaboration. Utilize a website and electronic communications for plan outreach, particularly with distant participants. Emphasize the financial benefits of planning and mitigation for local governments.*

Planning Goal #5: Utilize existing programs to the extent possible to support mitigation goals. *Statewide and national programs (e.g., the National Weather Service's Storm Ready program and the National Fire Plan) are important cooperating initiatives for hazard mitigation in Montana.*

Planning Goal #6: Focus the Plan on the major Statewide risks to persons, property, infrastructure, and/or the environment. *An all-inclusive, non-specific plan would be too vague and would not allow for concentration on the major hazard areas, issues and risks.*

Planning Goal #7: Identify areas where insufficient data exists to fully quantify hazards and document plans to address those shortcomings. *Recognizing the problems with acquiring hazard data will demonstrate the limitations in assessing the hazards and provide possible solutions for improving the hazard assessment.*

Planning Goal #8: Use the hazard assessment as the cornerstone of the mitigation strategy. *Basing the mitigation strategy on information from the hazard assessment will promote a greater connectivity between the problem and the solution.*

Planning Goal #9: Outline the prioritization scheme that will be used to review local projects for funding. *The mitigation plan should provide specific examples of projects that will be encouraged.*

Planning Goal #10: Emphasize outside funding sources in addition to FEMA, such as the US Army Corps of Engineers (USACE) and other federal, tribal, state, and local agencies. *Include projects that are related to mitigation, and look toward alternative funding sources if traditional mitigation funding sources are not applicable.*

Planning Goal #11: Foster a regional approach to mitigation, not just the jurisdictional areas. *Promote agency coordination through the planning initiatives.*

2.2 ORGANIZATION RESPONSIBILITIES

The mitigation-related responsibilities of state agencies and other non-state entities were identified for the planning and update process and upon plan completion. These responsibilities fall within the mission of each organization or department as it relates to mitigation. Although the mitigation responsibilities may be a small or large part of the organization's mission and workload, they are nonetheless important. The tables outlining agency and organization responsibilities have been broken into those departments that are part of state government and those that are not (see **Table 2.2-1** and **Table 2.2-2**).

Table 2.2-1 State Government Organizations and Responsibilities

Department or Agency	Responsibilities
Department of Administration	<ul style="list-style-type: none"> Provide and build safe state government facilities that are resistant to disaster Evaluate new construction of state-owned buildings with respect to hazard information Mitigate damage to the state's information technology systems Plan for continuity of service throughout Montana State government
Department of Agriculture	<ul style="list-style-type: none"> Mitigate bioterrorism and disease outbreaks in agriculture
Office of the State Auditor	<ul style="list-style-type: none"> Promote the National Flood Insurance Program and other types of hazard insurance with the insurance industry
Department of Commerce	<ul style="list-style-type: none"> Help businesses mitigate disasters Provide safe, disaster resistant housing for low-income people Promote sustainable community development Provide disaster information to tourists
Department of Corrections	<ul style="list-style-type: none"> Provide safe, disaster resistant facilities for incarcerated populations Ensure corrections facilities can be easily evacuated during disasters
Department of Environmental Quality (DEQ)	<ul style="list-style-type: none"> Conduct outreach in hazardous material spill prevention Regulate drinking water supplies Assess air quality Assist with the review of mitigation projects under the National Environmental Policy Act (NEPA), as applicable
Department of Fish, Wildlife & Parks (FWP)	<ul style="list-style-type: none"> Promote safe recreation for the public Assist with the review of mitigation projects under NEPA, as applicable Encourage mitigation in the wildland/urban interface
Office of the Governor	<ul style="list-style-type: none"> Protect the lives and property of the citizens of-and visitors to- the State of Montana
Commissioner of Higher Education	<ul style="list-style-type: none"> Promote safe, disaster resistant universities and colleges
Montana Historical Society	<ul style="list-style-type: none"> Mitigate historic sites from disasters where possible Assist with the review of mitigation projects under NEPA, as applicable
Department of Justice	<ul style="list-style-type: none"> Prevent crime, terrorism, and natural resource damage whenever possible
Department of Labor and Industry (DLI)	<ul style="list-style-type: none"> Encourage safe residential and commercial structures through building code enforcement Promote commercial and employer mitigation for employee safety
Montana Bureau of Mines and Geology (MBMG)	<ul style="list-style-type: none"> Study geological hazards
Montana Legislative Branch	<ul style="list-style-type: none"> Create laws that will protect citizens and visitors from disasters
Montana State Library	<ul style="list-style-type: none"> Serve as a clearinghouse for GIS data on hazard and disaster information when available
Montana University System	<ul style="list-style-type: none"> Provide safe, disaster resistant campuses

Table 2.2-1 State Government Organizations and Responsibilities

Department or Agency	Responsibilities
Department of Livestock	<ul style="list-style-type: none"> Encourage livestock health and food safety Mitigate bioterrorism and disease outbreaks in Montana's livestock industry
Department of Military Affairs (DMA)	<ul style="list-style-type: none"> Coordinate mitigation efforts statewide Manage HMGP and PDMC grants from FEMA Review local mitigation plans Provide mitigation technical assistance to local governments, tribes, and state agencies Provide regular mitigation training Protect National Guard assets from disasters
Montana State Fund	<ul style="list-style-type: none"> Promote safe, disaster resistant workplaces
Department of Natural Resources and Conservation (DNRC)	<ul style="list-style-type: none"> Encourage wildfire mitigation in the wildland/urban interface Manage the state's floodplain program and floodplain mapping Promote flood mitigation Manage NFIP grants from FEMA Ensure dam safety Assist with the review of mitigation projects under NEPA, as applicable
Office of Public Instruction	<ul style="list-style-type: none"> Promote programs in school safety and disaster prevention education
Board of Public Education	<ul style="list-style-type: none"> Promote safe, disaster resistant schools
Department of Public Health and Human Services (DPHHS)	<ul style="list-style-type: none"> Prevent epidemics and disease related disasters when possible Promote safe, disaster resistant state hospitals Promote disaster resistance and mitigation with those providing elder services
Public Service Commission	<ul style="list-style-type: none"> Promote utility safety and reliability
Department of Transportation (MDT)	<ul style="list-style-type: none"> Mitigate damage to the state's transportation infrastructure Evaluate hazard information when designing roads and bridges to mitigate future damages

Table 2.2-2 Non-State Government Organizations and Responsibilities

Organization	Responsibilities
American Red Cross	<ul style="list-style-type: none"> Promote disaster preparedness Support local mitigation efforts
Bureau of Indian Affairs (BIA)	<ul style="list-style-type: none"> Promote disaster mitigation on tribal lands Encourage wildfire mitigation in the wildland/urban interface and rangeland areas
Bureau of Land Management (BLM)	<ul style="list-style-type: none"> Encourage wildfire mitigation in the wildland/urban interface and rangeland areas
Federal Emergency Management Agency (FEMA)	<ul style="list-style-type: none"> Promote disaster mitigation Provide grants for mitigation activities Review and approve state and local mitigation plans Administer the Hazard Mitigation Grant Program and Pre-Disaster Mitigation Competitive grants Administer the National Flood Insurance Program Coordinate the National Earthquake Hazards Reduction Program
Montana Association of Counties (MACo)	<ul style="list-style-type: none"> Inform local governments of mitigation opportunities Introduce legislation that supports local mitigation goals
Montana Chamber of Commerce	<ul style="list-style-type: none"> Promote safe, disaster resistant businesses Encourage and assist with mitigation partnerships
Montana Disaster and Emergency Services Association	<ul style="list-style-type: none"> Promote mitigation opportunities with local DES coordinators

Table 2.2-2 Non-State Government Organizations and Responsibilities

Organization	Responsibilities
Montana League of Cities and Towns	<ul style="list-style-type: none"> Inform local governments of mitigation opportunities Introduce legislation that supports local mitigation goals
National Park Service (NPS)	<ul style="list-style-type: none"> Encourage wildfire mitigation in the wildland/urban interface
National Weather Service (NWS)	<ul style="list-style-type: none"> Support mitigation of weather-related hazards in local communities Provide warning of potential hazards when possible Provides real time entry in EAS for all weather and non-weather related emergency messages and alerts.
Natural Resources Conservation Service (NRCS)	<ul style="list-style-type: none"> Protect watersheds through the Emergency Watershed Protection Program (EWPP) Promote mitigation from all natural hazards Promote flood mitigation through the purchase of easements Promote resource conservation Provide technical assistance on hazards to federal, state, local, tribal, and private organizations Provide technical and financial assistance to private landowners with the use of the Environmental Quality Incentive Program (EQIP) for drought, fire, and erosion
U.S. Army Corps of Engineers (USACE)	<ul style="list-style-type: none"> Promote flood prevention Assist with mitigation on waterways Assist with the review of mitigation projects under NEPA and USACE permits, as applicable
U.S. Department of Agriculture (USDA)	<ul style="list-style-type: none"> Promote drought mitigation Encourage wildfire mitigation in the wildland/urban interface
U.S. Environmental Protection Agency (EPA)	<ul style="list-style-type: none"> Protect wetlands Promote safe air quality Mitigate hazardous materials contamination
U.S. Forest Service (USFS)	<ul style="list-style-type: none"> Encourage wildfire mitigation in the wildland/urban interface
U.S. Geological Survey (USGS)	<ul style="list-style-type: none"> Monitor river levels Study seismic and other geologic hazards

2.3 INTEGRATION WITH OTHER STATE PLANS AND PROGRAMS

An assessment of planning efforts at the State level was conducted by the Contractor after researching and contacting various federal and State agencies and utility companies. A description of the initiatives, goals in common, and opportunities for the integration of mitigation measures found is provided below.

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment⁷ – October 2004

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment of 2004 was developed to comply with the requirements of the Disaster Mitigation Act of 2000. State Hazard Mitigation Plans are required by FEMA to be updated every three years; therefore, this Plan will be incorporated into and – will be replaced by the 2007 State Plan Update. The plan is maintained at the State of Montana, Department of Military Affairs, Disaster and Emergency Services by the SHMO.

⁷ State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment, Adopted October 2004.

Hazard Mitigation Grant Program (HMGP) Administrative Plan⁸ - October 2001

The Hazard Mitigation Grant Program (HMGP) Administrative Plan required for the HMGP post-disaster mitigation will continue to be an important guiding document for managing HMGP projects. This administrative plan describes the process used to solicit communities for projects, select projects, and then manage the grant program to fund the projects. Attachments include sample press releases, letters, and reports and instructions for National Emergency Management Information System (NEMIS) procedures. The Pre-Disaster Mitigation (PDM) program will be managed in a very similar fashion, and therefore, the HMGP Administrative Plan will serve as an initial management guide for the PDM program. Ideally, a future opportunity will allow for the integration of the two programs and the administrative document into the Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. The current HMGP administrative plan is maintained at the State of Montana, Department of Military Affairs, Disaster and Emergency Services by the SHMO.

Montana Disaster and Emergency Plan⁹ - no date

The Montana Disaster and Emergency Plan, essentially the Emergency Operations Plan for the State of Montana, addresses the actions the State will take during times of disaster. Mitigation is an important aspect of the operations. The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment will replace the previous Hazard Mitigation Plan as Volume 17 of the Montana Disaster and Emergency Plan. The Montana Emergency Coordination Plan is the coordinating and policy document for the Montana Disaster and Emergency Plan. Terrorism and Hazardous Materials are addressed in annexes to this document. The Montana Disaster and Emergency Plan is maintained at the State of Montana, Department of Military Affairs, Disaster and Emergency Services.

Local Emergency Operations Plans

Many counties and tribes in Montana have Emergency Operations Plans. The primary purpose of these plans is to maximize survival of people, prevent and/or minimize injuries, and preserve property and resources by making use of all available manpower, equipment, and other resources in the event of a natural, man-made, or national security emergency/disaster. Concepts of operations include mitigation and mitigation measures, increased readiness, emergency actions, and recovery actions. Mitigation typically involves restricting development in hazardous areas, promoting fire prevention, working with commerce and industry to improve hazardous materials storage, use, transportation and disposal, and maintaining shelter/mass care and evacuation annexes. Local Emergency Operations Plans are typically maintained by local disaster and emergency management coordinators and are integrated into Local PDM Plans.

⁸ State of Montana Hazard Mitigation Administrative Plan, Montana Department of Military Affairs, Disaster and Emergency Services Division, Adopted 1991, Revised October 2001.

⁹ Montana Disaster and Emergency Plan, Montana Department of Military Affairs, Disaster and Emergency Services Division, no date.

Montana's Homeland Security Strategic Plan¹⁰ – December 2003

Montana's Homeland Security Strategic Plan was developed by the Montana Strategic Planning Committee for Homeland Security with the purpose to "...identify strategic direction for enhancing local, tribal, regional, and state capability and capacity to prevent and reduce Montana's vulnerability from Weapons of Mass Destruction (WMD) terrorism incidents." Two of the four priorities of this plan relate directly to hazard mitigation as follows:

- Enhance detection, prevention, and mitigation, which include intelligence capabilities.
- Identification, documentation, protection, and hardening of critical infrastructure.

The focus to "incorporate an all-hazard approach into WMD terrorism planning" is also similar to the goals of hazard mitigation. This strategic plan supplements the hazard assessment done for the statewide mitigation strategy through a detailed, non-public analysis of the terrorist threats to the State of Montana. The strategic plan will continue to be revised by the State of Montana, Department of Military Affairs, Disaster and Emergency Services through the Homeland Security Task Force and remain an important piece of the statewide hazard mitigation strategy. Mitigation was considered in the development of the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment and will continue to be a consideration in future updates. The Montana Homeland Security Strategic Plan is maintained by the State of Montana, Department of Military Affairs, Disaster and Emergency Services.

Montana COOP and COG Plans – February 2006

The State of Montana prepared a Continuity of Operations Plan (COOP), an agency-wide effort to develop ensure the continued performance of essential government functions during times of natural disaster, security intrusions and/or acts of terrorism. Ten state agencies, identified as having a lead responsibility in emergency coordination, determined their agency's critical or essential function(s), staffing and resource requirements, critical systems, vital files, records or databases(s), and alternate facility needs. A software product was then used to generate agency-specific COOP plans which were incorporated into Montana's Continuity of Government (COG) Plan (Volume XV). Disaster mitigation is a key consideration in COOP and COG planning (e.g. non-structural mitigation projects are needed to protect data center equipment from non-catastrophic earthquakes). The Montana COOP Plan is maintained by the State of Montana, Department of Military Affairs, Disaster and Emergency Services with information technology (IT) responsibilities being managed by the Montana Department of Administration, Information Technology Services Division.

State and Local Human Disease and Public Health (Pandemic Influenza) Emergency Plan – 2006

The State of Montana, as well as local counties and tribes, have been involved in pandemic influenza preparedness efforts. States and local communities are responsible under their own authorities for responding to an outbreak within their jurisdictions and having comprehensive pandemic preparedness plans and measures in place to protect their citizens. The focus of these planning efforts is on practical, community-based procedures that could prevent or delay the spread of pandemic influenza, and help to reduce the burden

¹⁰ Montana's Homeland Security Strategic Plan, Montana Department of Military Affairs, Disaster and Emergency Services, December 17, 2003.

of illness communities would contend with during an outbreak. With all "preparedness" plans there is a mitigation component. The Department of Public Health and Human Services maintains the State's Pandemic Influenza Emergency Plan and County/Tribal Health Departments maintain local plans.

Montana Department of Agriculture Emergency Response Plan – Draft (2007)

The Montana Department of Agriculture has developed an Agro-Emergency Response Plan to address policies and procedures that will minimize the impact of a deliberate or unintentional incident related to the State's crop production. The purpose of the plan is to provide for rapid response to significant threats to plants that may impact food safety and public health. The plan provides guidance to mitigate against exotic plant pests and other agricultural emergencies.

Guidelines for Montana Agricultural Emergencies for Local and Tribal Governments – Draft (2007)

Montana Departments of Livestock, Agriculture, Fish Wildlife and Parks, and Public Health and Human Services are charged with protecting public health, the safety of the food supply, and the integrity of animal and plant agriculture industries in Montana. These agencies have developed guidelines for Montana Agricultural Emergencies for Local and Tribal Governments to heighten biosecurity awareness and give direction to address agricultural emergency.

Montana Individual & Family Grant Program Administrative Plan¹¹ – August 2000

The Montana Individual & Family Grant Program Administrative Plan addresses the procedures used to provide Individual and Family Grant assistance to customers. This program provides financial assistance for housing, personal property, transportation, medical and funeral expenses, and other personal necessities following a Presidential disaster declaration. As it relates to mitigation, this Administrative Plan addresses the flood insurance purchase requirements, rebuilding to current building code standards, and fuels reduction activities for individuals during the recovery from a disaster. The program, by design, encourages mitigation following an event and will continue to do so. The State of Montana, Department of Military Affairs, Disaster and Emergency Services maintains the Individual & Family Grant Program Administrative Plan.

Montana Public Assistance Administrative Plan¹² – July 2003

The Montana Public Assistance Administrative Plan focuses on the recovery of public assets and expenses following a disaster. The Public Assistance program provides assistance with repairing damaged public buildings, roads, bridges, water control facilities, utility systems, parks, and other publicly owned entities. Section 406 of the Stafford Act allows for the funding of mitigation to damaged facilities and infrastructure to prevent similar losses in the future. Therefore, following a disaster, mitigation activities to be conducted as part of the

¹¹ State of Montana Individual and Family Grant Program Administrative Plan, Montana Department of Military Affairs, Disaster and Emergency Services Division, August 2000.

¹² State of Montana Public Assistance Administrative Plan, Montana Department of Military Affairs, Disaster and Emergency Services Division, July 2003.

facility or infrastructure repair are guided by this administrative plan. The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment will be incorporated into the Public Assistance Administrative Plan where applicable. In addition, future updates of this Plan will outline the details related to the Disaster Mitigation Act of 2000 and mitigation planning. The State of Montana, Department of Military Affairs, Disaster and Emergency Services maintains the Montana Public Assistance Administrative Plan.

Montana Framework for Economic Development¹³ – January 2002

The Montana Framework for Economic Development, developed by the Governor's Office of Economic Opportunity, is to "guide the state's economic development efforts to create a stronger, more diversified economy in Montana." This document primarily focuses on the growth of Montana's economy. The plan itself states, "The goals and strategies set forth in this document were developed with one comprehensive end result in mind: to support, retain, expand and attract sustainable and environmentally responsible economic activity that makes Montana a better place to live and work." Although the document doesn't specifically mention the need to create an economy that is resistant to disasters specifically one goal and strategy are related.

- **Goal:** Promote sustainable economic growth that balances the economic needs of Montanans with maintaining a healthy and attractive environment.
- **Strategy:** Maintain safety and security of Montana residents.

In addition, a sustainable economy and disaster prevention are inherently related despite not being specifically noted in the framework. Suggestions will be made to expand upon economic sustainability through disaster resistance for the next revision. The Governor's Office of Economic Opportunity maintains Framework for Economic Development.

Long Range Building Program¹⁴

The Long Range Building Program (LRBP) is Montana's program for capital projects of State owned facilities. The six year schedule of capital expenditures lists needed projects and estimated costs. This program, established by the legislature in 1965, is the financial mechanism for constructing and providing significant maintenance to state buildings. It is the "single, comprehensive and prioritized plan to allocate state resources."

Projects are submitted by state agencies during even numbered years for consideration. Each agency prioritizes its own projects based on their capital improvement goals prior to submission. The proposed projects are then reviewed by the Department of Administration, Architecture and Engineering Division and prioritized statewide. This list of prioritized projects is then submitted to the Governor for inclusion in the Governor's Budget presented to the state legislature. Once approved by the legislature, the projects can be initiated, when funded.

This program is critically important to the mitigation of hazards on state owned facilities, including the universities. All capital improvements over \$150,000, including those funded federally or otherwise, are submitted through this program. The factors considered during

¹³ A Framework for Economic Development, Montana Governor's Office of Economic Opportunity, January 9, 2002.

¹⁴ <http://www.discoveringmontana.com/doa/aed/DesignConstruction/LongRangeBuildingProgram/LongRangeBuildingProgram.asp> and Interview of Joe Triem, Montana Department of Administration, June 2004.

the prioritization process include the project justification, program impact, cost, relationship to any overall long range strategic and site plans, and other pertinent factors. The project's ability to receive approval from the legislature and how well it balances the agency's needs are additional important factors.

Hazard mitigation is not specifically considered under the current system, however, many factors related to disaster prevention are. For example, agencies must give reasons as to how priorities were given to their projects and be based on questions such as:

- Does the project improve conditions that threaten life or property or involve improvements to comply with State or Federal regulations?
- Does the project correct a problem that if not corrected would cause further deterioration of an existing structure?

Other aspects of hazard mitigation are considered during the proposed project's evaluation such as determining if the structure is or will be in the floodplain and requiring new buildings to meet building code standards. Special consideration for life, safety, and hazard mitigation is given when identified by the submitting agency. In addition, evaluators from the Architecture and Engineering Division are educated on hazards on a regular basis. For example, a leading Montana earthquake expert recently gave a talk on building failures from earthquakes to Architecture and Engineering Division employees. Despite the identified opportunities for mitigation, ultimately, the program is limited financially, and mitigation projects must compete with other statewide priorities. This program is an important factor in developing mitigation measures for state-owned facilities.

Montana Department of Transportation¹⁵

Although not specifically detailed in a plan, the Montana Department of Transportation (MDT) has hazard mitigation integrated into the planning, design, and engineering of its road, bridge, and facility projects. Hazards, such as flooding, avalanche, landslide, and earthquake, are considered by designers and engineers when developing construction projects. Hazard information is often relayed to the designers and engineers by employees in the field that manage the roadway infrastructure on a day to day basis. Hazards are typically mitigated during major road repairs, and when possible, are prevented through minor repair projects and regular maintenance. MDT has a responsibility to prevent damages from disasters, natural or manmade, to the highway infrastructure and the surrounding environment. In addition to the road infrastructure, hazards are considered during facility design as well. Snow loads, in addition to the other hazards, are considered when designing those facilities, especially considering operational MDT facilities are often critical for response operations during a disaster. MDT will continue to evaluate hazard mitigation opportunities on an ongoing basis and copies of the hazard assessment will be distribute to those designers and engineers developing projects for their additional consideration.

Montana Floodplain Management Strategic Plan

A strategic plan for mapping and coordinating the management of the floodplains in Montana under the National Flood Insurance Program and the Map Modernization Program is currently in development by the State Floodplain Manager, Department of Natural Resources and Conservation. Although not completed yet, this strategic plan will guide the

¹⁵ From Interview with Jim Hyatt, Montana Department of Transportation, June 2004.

important mitigation task of updating floodplain mapping and information. This document will serve as a supplement to the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.

Montana Ground Water Plan¹⁶ – February 1999

The Montana Ground Water Plan, initiated in 1992 as required by Montana Law, addresses ground water issues and "...must set out a progressive program for the conservation, development, and utilization of the state's water resources..." (Montana Code Annotated <MCA> 85-1-203) Protection, education, and remediation are the three major subsections of the plan. This plan is important to hazard mitigation as it relates to flooding, drought, hazardous materials spills, and public health. The primary focus of the plan is on ground water issues such as supply and contamination and not those specifically related to disaster mitigation. For legislation related to this plan see Title 85, Chapter 1, Part 2 MCA. The Montana Ground Water Plan is maintained by the Montana Department of Natural Resources Conservation.

Montana Drought Response Plan¹⁷ - 1995

The Montana Drought Response Plan was written to enable the Montana Drought Advisory Committee "...to take measures appropriate for the mitigation of drought impacts to the people and natural resources of Montana." The Response Plan serves as a guide for assessing the impacts of drought and making recommendations for actions that mitigate its effects on the population, economy, and environment. The Plan also describes the different agency responsibilities as they relate to drought. Although drought mitigation is mentioned numerous times in the Plan, the actions are in response to existing or forecast drought conditions, not actions that can be taken prior to a drought developing. This plan is maintained by the Montana Drought Advisory Committee, a multi-agency committee required by state law, MCA 2-15-3308.

Montana Wildfire Event Action Plan for the Mitigation of Public Health Impacts Caused by Smoke from Wildfire Events¹⁸ – July 2001

The Montana Wildfire Event Action Plan focuses on the monitoring and notification actions to be taken by the State for air quality during wildfire events. The issue of public information and suggested actions such as staying indoors, etc. is addressed. This course of action is in line with the objectives of the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. Additional integration of mitigation measures is not required. The Wildfire Event Action Plan is maintained by the Montana Department of Environmental Quality.

Montana Citizen Corp

The Montana Citizen Corp is organized under the Montana Office of the Governor and is coordinated nationally by the Department of Homeland Security. The purpose of the Citizen

¹⁶ Montana Ground Water Plan, Montana Department of Natural Resources and Conservation, February 1999, http://www.dnrc.state.mt.us/wrd/gw_plan.htm.

¹⁷ The Montana Drought Response Plan, Montana Drought Advisory Committee, 1995.

¹⁸ Montana Wildfire Event Action Plan for the Mitigation of Public Health Impacts Caused by Smoke from Wildfire Events, Montana Department of Environmental Quality - Permitting and Compliance Division -Air Resources Management Bureau - Air Quality Policy and Planning Section, July 2001.

Corp is to promote volunteer service activities that support homeland security and community safety. Service programs such as AmeriCorps support Citizen Corps activities by helping to establish training and information delivery systems for neighborhoods, schools, and businesses, and by helping with family preparedness and crime prevention initiatives in a community or across a region. The Montana Citizen Corp has assisted with hazard mitigation activities around the state including removal of woody debris from flood-prone drainages and distribution of public outreach materials.

Montana University System Pre-Disaster Mitigation Plans – Draft 2007

The Montana University System received a PDM planning grant to prepare Pre-Disaster Mitigation Plans for eight of its Montana campuses including: The University of Montana (UM)-Missoula, UM-Western, UM-Helena College of Technology, Montana Tech of UM, Montana State University (MSU)-Bozeman, MSU-Billings, MSU-Northern, and MSU-Great Falls College of Technology. These plans outline mitigation strategies to create Disaster Resistant Universities and have been reviewed and when finalized will be incorporated into the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment where applicable.

Local Pre-Disaster Mitigation (PDM) Plans

The Local Pre-Disaster Mitigation Plans (Local PDM Plans), a vital piece of the State's mitigation strategy, have been reviewed and incorporated into the State Plan, both electronically as linked documents and as annexes to the State Plan. Approved Local PDM Plans are maintained by the respective local jurisdictions and must be reviewed and resubmitted for approval by the State annually and at least every five years by FEMA, per State and FEMA requirements.

3.0 HAZARD ASSESSMENT

3.1 HAZARD ASSESSMENT INTRODUCTION

3.1.1 Purpose

The Hazard Assessment portion of this document provides a detailed description of the hazards in Montana, an assessment of the State's vulnerability to those hazards, and a basis for the mitigation goals and activities proposed in the Mitigation Strategy portion of the document. This Hazard Assessment section examines natural and man-made hazards that can impact the state, determines which areas of the state are most vulnerable to each hazard, and estimates potential losses to state facilities for each hazard. This assessment is both a stand-alone product (referred to as the Statewide Hazard Assessment) and part of the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.

The *State of Montana Hazard Assessment* identifies and describes the major natural and man-made hazards that have the greatest potential to affect the people, environment, economy, and property of the state. These hazards are:

- Earthquakes
- Flooding
- Hazardous Material Incidents
- Landslide
- Terrorism and Violence
- Communicable Disease
- Volcanic Eruptions
- Winter Storms and Avalanche
- Drought and Effects of Drought
- Severe Thunderstorms, Hail, Wind and Tornadoes
- Wildland and Rangeland Fires

This Hazard Assessment describes each of the above-listed 11 hazard categories, including a history of impacts to the state and a profile of declared disasters, emergency orders, and Federal assistance. Where possible, the hazard assessment identifies jurisdictions most vulnerable to future hazard events, and provides a synopsis of State-owned and operated facilities and infrastructure that are most likely at-risk to the hazard. The results of this Hazard Assessment were used to formulate the mitigation strategies outlined.

The Hazard Assessment makes reference to Pre-Disaster Mitigation Plans completed for local jurisdictions (i.e., Local PDM Plans). Local PDM Plans are a key to understanding the local impacts from hazards within a city, county, or Indian reservation. At this time, about 75 percent of the Local PDM Plans have been completed and approved and the remainder are in FEMA review or advanced draft. Input from the Local PDM Plans has been used to update the Hazard Assessment to accurately identify local impacts from the hazards profiled herein.

3.1.2 Hazard Identification and Document Preparation

3.1.2.1 Identifying Hazards

The hazards addressed in this assessment were identified through a series of Hazard Technical Advisory Group and Stakeholder Meetings, which included statewide experts in resource management, emergency services and disaster mitigation (see **Section 7.1 and 7.2** for a listing of members/participants). Review of the previous *State of Montana Hazard Mitigation Plan* helped form a framework for the discussions and the identification of hazards.

During the update process, state and local stakeholders provided input on whether hazards identified in the 2004 State Plan were still relevant to their jurisdictions and what, if any, additional hazards should be included in the State Plan Update.

3.1.2.2 Profiling Hazards

Each hazard was profiled by identifying the characteristics of the hazard, highlighting the recorded history of the hazard in Montana, and citing disaster declarations at the State and Federal level. The intent was to provide sufficient background to assess the potential for hazard recurrence and vulnerability in different portions of the state.

Individual hazard profiles begin with a description of the hazard, highlighting particular characteristics of the hazard. Sources for hazard information included:

- State of Montana Hazard Mitigation Plans (1996, 1998, 2001 and 2004).
- Historical disaster records and documents, including but not limited to reports and spreadsheets maintained by the Montana Disaster and Emergency Services (MDES).
- Government publications and web-sites regarding historic hazards and predicted hazard areas.
- Written and oral communication with state and national hazard experts.
- Facility databases developed by State agencies participating in the development of this plan.

Following each hazard profile is a list of references for that particular hazard (earthquake, flood, etc.).

Significant disasters are also described in detail to provide examples on the extent of the impact(s) from a disaster(s). Some of the more significant disasters include the Hebgen Dam earthquake in 1959, the Helena earthquake in 1935, the Great Flood in Great Falls and on the Blackfeet Reservation in 1964, the Great Idaho (and Montana) wildfire in 1910 and the Ravalli County wildfires in 2000, and the Spanish Influenza Outbreak in 1918. Each hazard profile includes a discussion of any Presidentially-Declared Disasters.

3.1.2.3 Disaster Declarations

Disasters can take many shapes and forms, and therefore, many different organizations are tasked with disaster assistance. From private organizations such as the American Red Cross, to Federal agencies such as the Federal Emergency Management Agency (FEMA), to State emergency management offices, each have their own purpose and tasks during times of disaster. As a result, what may be termed a disaster by one organization, may not be for another. In an attempt to clarify some of the disaster declarations mentioned in the hazard assessment, the most common types of disaster declarations and assistance have been identified.

Presidential Major Disaster Declaration: The most significant natural and manmade disasters overwhelming the affected state and local governments are declared by the President of the United States through a request made by the respective Governor(s). These requests are typically handled by FEMA. The assistance provided is done so under the Robert T. Stafford Disaster Relief and Emergency Assistance Act 42 U.S.C. §§ 5121-5206. Presidential Declared Disasters can be limited to certain categories of assistance and specific geographical areas (typically counties or reservations). The types of assistance provided by FEMA under a Presidential Declared Disaster are listed below.

Individual Assistance (IA):

Individual Assistance primarily involves disaster recovery for individuals. The forms of assistance typically available include low-interest loans for homeowners or businesses, cash grants, temporary housing, veteran benefits, tax refunds, excise tax relief, unemployment benefits, crisis counseling, and legal counseling.

Public Assistance (PA):

Public Assistance provides for the recovery of government infrastructure and services. This program typically funds the repair, restoration, reconstruction, or replacement of a public facility or infrastructure damaged or destroyed by a disaster and other items such as debris removal and emergency protective measures.

Hazard Mitigation Assistance:

Hazard Mitigation Assistance, through the Hazard Mitigation Grant Program and others, funds measures designed to reduce future losses to public and private property. This assistance is managed by the State and is available to all communities in the state, not just those affected.

Federal Emergency Declaration: An Emergency Declaration is more limited in scope than a major disaster declaration and does not provide the long-term Federal recovery programs. Generally, Federal assistance and funding are provided to meet a specific emergency need, such as snow plowing, or to help prevent a major disaster from occurring.

Fire Management Assistance Declaration: A Fire Management Assistance Declaration, formerly known as a fire suppression assistance declaration, allows for assistance when a fire or fire complex threatens such destruction as would constitute a major disaster. This program is also managed by FEMA.

State Disaster Declaration: A State Disaster Declaration is similar to a Presidential Disaster Declaration, but at the State level and declared by the Governor. State Disasters are typically declared when a disaster overwhelms the resources of the local government. The State declaration is a necessary precursor to a Presidential Disaster Declaration. In Montana, State disasters are declared through Executive Orders by the Governor.

State Emergency Declaration: A State Emergency Declaration is similar to a Federal Emergency Declaration at the State level. State Emergency Declarations allow State resources to be used in responding to or preparing for a disaster. These declarations are typically made through Executive Orders by the Governor.

State Incident Declaration: A State Incident Declaration is used in Montana when the level of an incident is elevated to the level of monitoring and response by Montana Disaster and Emergency Services (MDES). This declaration is typically done prior to an emergency or disaster declaration and activates the State Emergency Operations Center.

USDA Secretarial Disaster Designation: These disasters, typically to the agricultural community, are made by the Secretary of Agriculture and must be requested by the Governor. As with FEMA programs, USDA offers various programs for disasters.

Natural Disaster Determination: Low-interest loans are provided to primary and contiguous counties for family-sized farm operators from the Farm Service Agency.

Administrator's Physical Loss Notification: This Farm Service Agency program provides for physical losses, such as a building destroyed by a tornado.

Quarantine Designation: This Farm Service Agency program provides loans from losses due to a quarantine.

SBA Disaster Declarations: The Small Business Administration (SBA) can designate a disaster when at least three businesses sustain uninsured losses of 40 percent or more and if 25 percent or more of the community work force is unemployed for at least 60 days due to the disaster.

3.1.2.4 Incorporating Local Hazard Information

The State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment relies heavily upon local hazard assessments. These local hazard assessments determine the vulnerability to a particular hazard and an estimate of potential losses. The local assessments are part of Local Pre-Disaster Mitigation Plans (Local PDM Plans) completed by jurisdictions as part of their compliance with the Disaster Mitigation Act of 2000.

As of June 19, 2007, FEMA had approved 43 Local Hazard Mitigation Plans from Montana (**Figure 2-1-1**). Where available, hazard information from the local plans has been incorporated into the State Plan. The hazard information from the county and tribal plans provides specific examples of hazards that are profiled for the entire state. The vulnerability assessments conducted for the Statewide Hazard Assessment tends to correlate well with the approved local plans. In addition to incorporating content from the local plans into the State Plan, specific hazard sections from the local plans have been electronically linked from the corresponding hazard risk maps in the State Plan. **Appendix I** contains a Local Plan Index that provides electronic links to local plans for 59 of Montana's 62 counties and tribal reservations.

3.1.2.5 Assessing Vulnerability and Potential Losses

Methodologies for assessing hazard vulnerability vary depending upon the hazard, the type of losses that can be incurred, and available data. For some hazards, models have been developed to assess the potential vulnerability and calculate losses. For others, the vulnerability is qualitative and potential losses can only be assessed in a very general nature. The vulnerability assessment requires using data that is specific to a hazard but is general enough to address the entire state. In many cases, there are very specific data that may give an accurate assessment of losses within a specific jurisdiction or region of the state, but if the data cannot be applied statewide, it tends to skew results, potentially ignoring vulnerabilities in other portions of the state that have not been studied in detail.

The methods used in this Hazard Assessment represent the best readily-available data that can be used statewide. **Table 3.1.2-1** describes the methods used to assess vulnerability and losses to State-owned facilities.

Table 3.1.2-1 Vulnerability Assessment Methods

Hazard	Vulnerability Assessment Methods
Communicable Disease	Generally analyzed
Earthquake	HAZUS Earthquake Model Level 1 Analysis Using Annualized Loss Estimate Methods by county. If annualized losses exceed \$500,000, the county is considered to be highly vulnerable to earthquakes.
Flooding	Sum of Flood Insurance Coverage by county. If total county-wide policy coverage exceeds \$15M, the county is considered to be highly vulnerable to flooding.
Hazardous Material Incidents	A matrix analysis using the frequency of past hazardous material releases, the number of large industrial facilities that generate wastes, and the miles of rail and highway in the county. Counties with a composite hazardous material index of 30 or greater are considered highly vulnerable to hazardous material incidents.

Table 3.1.2-1 Vulnerability Assessment Methods

Hazard	Vulnerability Assessment Methods
Landslide	Generally analyzed, insufficient statewide data exists
Terrorism and Violence	Generally analyzed
Volcanic Eruptions	Counties located adjacent to Yellowstone Park are considered highly-vulnerable to impacts from volcanic eruptions, mudflows, and ashfall. Counties west of the Continental Divide are considered vulnerable to impacts from volcanic eruptions in the Cascade Range in Washington State.
Winter Storms and Avalanches	Statewide impacts; Entire state is highly vulnerable to winter storms.
Drought and Effects of Drought	Assessment by county was based on percent farm income compared to total county income. Counties with more than 20% of total county-wide income from agricultural sources are considered highly vulnerable to drought.
Severe Thunderstorms, Hail, Wind and Tornadoes	A storm index was calculated based on the frequency of tornadoes, extreme wind, and hail events to determine the counties with greatest occurrence and damage. The index was computed based on the number of events divided by the period of record. Counties with a composite index score over 200 were considered highly vulnerable to damage from tornadoes, extreme wind and hail events.
Wildland and Rangeland Fires	Condition class assessment completed by USFS mapped areas where fire suppression and land uses have increased fuels and changed normal fire regimes. Counties with greater than 40% of land in Condition Class II and III were considered highly vulnerable.

Potential losses were analyzed at both the state and local level. Methods for assessing potential losses varied between hazards. The hazard assessment identifies the exposure in structure value and content value for State-owned facilities. Exposure was evaluated as being either direct or indirect. Direct exposure includes those facilities that are located in hazard zones, such as floodplains or landslide areas. Indirect exposure includes those facilities that are located in counties which are determined to be highly vulnerable. Hazard exposure at the local level is based on structure value, society risk and potential economic loss, as detailed in the County and Tribal PDM Plans reviewed.

3.1.3 Profile Review

Each hazard profile was subject to a thorough review process directed and managed by the State of Montana, Department of Military Affairs, Disaster and Emergency Services Division (DES). DES Staff, as well as members of the Hazard Technical Groups, read and provided comments on preliminary drafts and interim drafts of the profiles for the 2004 State Plan and 2007 State Plan Update. The purpose of the expert review was to ensure the accuracy and currency of information presented, to validate the criteria used to identify local jurisdictions most vulnerable particular hazards, and to ensure conformity to Federal requirements for this plan.

3.1.4 Data Limitations

As stated above, the hazard profiles are based on a wide range of information used to describe each hazard and its potential impacts. The profiles help determine jurisdictions most vulnerable to each hazard. The depth of knowledge about the state's major hazards varies greatly. Ongoing research expands the scientific understanding for many of the hazards every year. Individual hazard profiles indicate areas where research is ongoing, if known, and describe any limitations of information or data used in the development of the profile.

Each hazard profile describes the data (and sources) used to determine which jurisdictions are most vulnerable to each hazard. Data limitations, such as lack of spatial data (geocode or latitude-longitude) information on State buildings, are also discussed within each hazard profile.

3.1.5 Qualitative Hazard Assessment Summary

3.1.5.1 State-wide Hazard Assessment Summary

As shown in **Table 3.1.5-2**, the Stakeholders Group determined, based on the current hazard assessment results, that there are six categories of natural hazards the state should be most concerned about:

- Earthquakes
- Flooding
- Winter Storms and Avalanche
- Drought and Effects of Drought
- Severe Thunderstorms, Hail, Wind and Tornadoes
- Wildland and Rangeland Fires

In ranking the hazards, the team examined six consequences of hazard events: potential to damage structures, potential for deaths, potential for injury, potential for economic impact, potential damage to the environment, and potential to occur (**Table 3.1.5-1**). Each consequence was ranked from "low" (generating a score of 1), to "high" (generating a score of 3). In applying the damage measures, the assessment assumed the hazard was severe enough to be considered eligible for Federal assistance of some form.

Table 3.1.5-1 Qualitative Hazard Assessment Measures

Hazard	High	Moderate	Low
Potential to Damage Structures	Widespread, Severe Damage	Localized Severe Damage	Minor Damage
Potential for Deaths	Greater than 10	1-10	No deaths
Potential for Injury	Greater than 50	10-50	Less than 10
Potential for Economic Impact	Extended Widespread	Temporary Widespread	Temporary Localized
Potential Damage to Environment	Widespread, Severe	Localized, Severe	Minimal
Potential to Occur	20 Years or Less	20-100 Years	100 Years or Greater

The hazards with the highest total scores were considered the hazards of greatest concern for the state. **Table 3.1.5-2** shows the ranking of the 11 hazard categories, with the priority hazards scoring highest. Communicable disease, a public health and economic concern, scored within the range of the top six natural hazards.

Table 3.1.5-2 Qualitative Hazard Assessment Summary for Montana

Hazard ²	Structure Damage	Potential for Death	Potential for Injury	Economic Impact	Damage to Environment	Potential to Occur	Total ¹
Wildland and Rangeland Fires	moderate	high	high	high	high	high	17
Earthquake	high	high	high	high	moderate	low	15
Flooding	moderate	moderate	moderate	high	low	moderate	12
Winter Storms and Avalanche	moderate	moderate	moderate	moderate	low	high	12
Severe Thunderstorms, Hail- Wind- Tornadoes	moderate	moderate	moderate	high	low	high	11

Table 3.1.5-2 Qualitative Hazard Assessment Summary for Montana

Hazard ²	Structure Damage	Potential for Death	Potential for Injury	Economic Impact	Damage to Environment	Potential to Occur	Total ¹
<i>Drought and the effects of drought</i>	low	low	low	high	high	high	11
Communicable Disease	low	high	high	moderate	low	low	11
Hazardous Material Incidents	low	low	moderate	low	moderate	low	8
Landslides	low	low	low	moderate	moderate	low	8
Volcanic Eruptions	low	low	low	moderate	moderate	low	8
Terrorism and Violence	low	low	low	moderate	low	low	7

¹Total value derived by assigning 3 for high, 2 for moderate, and 1 for low.

²Top 6 natural hazards in bold italics.

3.1.5.2 Local Hazard Assessment Summary

During the State Plan update process, qualitative hazard ranking at the local level involved reviewing and validating Hazard Risk Maps. The Contractor reviewed approximately 62 local PDM Plans, some of which were in the final drafting stage, to capture the local jurisdiction's "risk" to the 10 hazards profiled in the 2004 State Plan. Hazard "risk" was assigned a high, medium, or low ranking based on information presented in the Local PDM Plans. This ranking was problematic since hazard risk was evaluated differently by the various authors of the Local Plans. Some Local Plans ranked hazards 1 through 10 in order of importance, but it could not be assumed that hazards 1-3 were high risk, hazards 4-7 were medium risk, and hazards 8-10 were low risk. Therefore, the Contractor's attempt to accurately capture the intent of the local plans had to be validated by each jurisdiction.

The validation process involved presenting the district-level Hazard Risk Maps at the local meetings. Meeting participants discussed each map and provided the Contractor with feedback concerning how the hazard risk rankings should be adjusted to accurately portray the hazard assessment in their Local PDM Plans. Some local plans did not profile all hazards in the State Plan.

After the public meeting input was translated into revised Hazard Risk Maps, the maps were sent to local DES Coordinators to review with their associated Local Emergency Planning Committees (LEPCs) or Tribal Emergency Response Committees (TERCs). The updated maps were also posted on the project website. Adjustments to the Hazard Risk Maps were made upon request for the duration of the State Plan Update project. These maps are presented in subsequent sections of this Hazard Assessment with electronic links to the local plans.

3.2 INVENTORY OF ASSETS AND POPULATION

Hazards have the potential to impact the state by numerous means. Hazards can increase the risk of death or injury to residents and visitors. Hazards can damage the built environment and the State's investment in public office buildings, colleges, hospitals, and prisons. Damages from hazards can interrupt the State's infrastructure, including highways, telecommunications, power distribution systems, conveyance of water, and collection of wastewater. Disasters caused by hazards can also adversely affect the State economy. The intent of this section is to describe these assets, and where possible, assign potential dollar values to them.

The inventory first defines State building assets which include a complete inventory of State-owned buildings and leased buildings, their content values, and real property. The inventory includes facilities that, if damaged during a disaster, could affect the ability to respond and protect the population. They include:

- Essential Facilities (hospitals, police, fire, and military facilities),
- Transportation Systems (railroad, highways, and airports),
- Lifeline Utility Systems (petroleum pipelines, natural gas pipelines and electrical transmission facilities),
- High Potential Loss Facilities (dams, research facilities, and universities), and
- Major Hazardous Material Facilities (chemical plants, petroleum terminals, and frequently-traveled transportation routes).

The inventory includes a county by county assessment of personal per capita annual income and estimated economic activity by county. The population is described, including its characteristics and distribution throughout the state.

3.2.1 State-Owned Buildings and Property

3.2.1.1 State Buildings

The State of Montana owns approximately 4,500 buildings with a total estimated value of \$2.5 billion. Buildings are located in every county in the state with government complexes concentrated in Helena and higher education complexes in Missoula, Bozeman, Butte, Billings, Havre, and Dillon.



Picture 3.2-1 DNRC offices in Helena
Source: MDNRC, 2004a

Table 3.2.1-1 summarizes the buildings by agency and includes square footage, building value, building content value, and special content value. The University System has the largest complex of buildings (approximately 1,200), with an estimated value of \$2.1 billion including content value. The University System buildings represent 82 percent of total square footage of State-owned buildings, but make up 66 percent of the total value. That difference may be partially attributable to the special content value assigned to books and specialized research equipment. The Department of Administration has the next largest group of buildings, primarily associated with the Capitol Complex. The 69 Administration buildings have an estimated total value of \$240 million, including the \$107 million Capitol building.

The Property Casualty Insurance Information System (PCIIS) database of the Montana Risk Management and Tort Defense Division assigns building locations by address and city, but digital parcel location attributes are not included in the database. Without parcel geo-codes or latitude/longitude data, the individual buildings cannot be precisely located within hazard zones, limiting the ability to make quantitative assessments of building exposures to a particular hazard. However, an inventory of State buildings in areas with a high exposure to

Table 3.2.1-1 Content and Structure Value by State Agency

Agency	Square ft	No. of Buildings	Building Structure Value	Building Content Value	Special Content Value	Total Value
Auditor's Office	17,851	1	\$0	\$547,500	\$54,000	\$601,500
Department of Administration	1,494,999	69	\$240,668,916	\$53,527,746	\$14,672,904	\$308,869,566
Department of Agriculture	40,917	16	\$437,816	\$2,635,719	\$106,894	\$3,180,429
Department of Commerce	370,694	261	\$28,571,492	\$1,872,837	\$808,000	\$31,252,329
Department of Corrections	1,219,322	176	\$121,870,725	\$22,091,504	\$6,128,006	\$150,090,235
Department of Environmental Quality	444,855	39	\$3,798,156	\$1,361,691	\$1,271,500	\$6,431,347
Department of Fish, Wildlife And Parks	714,690	782	\$40,240,449	\$6,580,878	\$10,309,617	\$57,130,944
Department of Justice	251,368	84	\$6,086,571	\$8,876,311	\$6,265,625	\$21,228,507
Department of Labor & Industry	221,588	35	\$7,683,913	\$6,559,862	\$1,329,180	\$15,572,955
Department of Livestock	10,809	15	\$0	\$440,010	\$85,000	\$525,010
Department of Military Affairs	631,845	85	\$55,908,215	\$16,627,560	\$120,000	\$72,655,775
Department of Natural Resources	396,668	214	\$25,562,483	\$15,188,586	\$1,132,790	\$41,883,859
Department of Revenue	195,188	57	\$3,992,706	\$3,931,675	\$10,557,408	\$18,481,789
Department of Transportation	1,880,869	789	\$126,503,109	\$22,607,592	\$6,248,226	\$155,358,927
Governor's Office	36,463	6	\$0	\$1,117,497	\$3,771,118	\$4,888,615
Historical Society	727,752	9	\$2,672,706	\$928,375	\$1,966,594	\$5,567,675
Office of Public Instruction	38,784	36	\$41,645	\$1,236,804	\$560,800	\$1,839,249
Public Health & Human Services	2,044,338	191	\$90,867,205	\$75,170,024	\$7,258,334	\$173,295,563
Public Service Regulation	15,600	1	\$0	\$438,048	\$27,372	\$465,420
State Board of Education	207,368	17	\$17,188,120	\$3,916,144	\$2,147,600	\$23,251,864
State Fund	93,116	7	\$6,668,421	\$4,583,068	\$3,395,000	\$14,646,489
Supreme Court - Judiciary	118,351	4	\$0	\$471,223	\$231,749	\$702,972
University System	52,188,716	1,263	\$1,468,294,374	\$300,191,052	\$348,847,569	\$2,117,332,995
TOTALS	63,423,031	4,159	\$2,247,057,022	\$550,901,706	\$427,295,286	\$3,225,254,014

Source: Property Casualty Insurance Information System (PCIS) maintained by the Montana Department of Administration's Risk Management and Tort Defense Division (March, 2007).

Note: Those structure values of \$0 represent leased buildings, not state-owned.

a particular hazard can provide a qualitative indication of their vulnerability. The State building complexes and large facilities, with structure values over \$10 million, are summarized in **Table 3.2.1-2**.

Table 3.2.1-2 Major State Buildings/Complexes

Agency	Complex/Building	Location	Building Structure Value	Aggregate Content Value	Employees
Administration					
	Capitol Complex	Helena	\$242,295,806	\$66,224,281	2,417
Department of Corrections					
	Women's Prison Complex	Billings	\$22,939,311	\$2,599,065	67
	Pine Hills School	Miles City	\$19,528,578	\$3,157,688	142
	State Prison	Deer Lodge	\$79,060,663	\$7,152,022	315
Natural Resource & Conservation					
	Toston Dam Power House	Toston	\$10,226,673	\$7,416,00	1
Transportation					
	Helena Headquarters Complex	Helena	\$19,357,711	\$7,623,970	600
Health & Human Services					
	Montana Developmental Center	Boulder	\$16,932,787	\$4,956,522	231
	State Hospital	Warm Spr.	\$48,128,639	\$8,801,259	424
Board of Education					
	School for the Deaf & Blind	Great Falls	\$17,188,120	\$3,239,204	82
Montana University System					
	UM-Helena College of Technology	Helena	\$12,555,537	\$5,138,765	84
	MSU-Billings	Billings	\$142,474,835	\$58,493,812	626
	MSU-Bozeman	Bozeman	\$601,669,811	\$301,871,451	2,748
	MSU-Northern	Havre	\$74,984,911	\$20,799,148	242
	Montana Tech of UM	Butte	\$71,797,175	\$18,402,117	183
	MSU-Great Falls College of Technology	Great Falls	\$34,434,370	\$7,122,663	121
	UM-Missoula	Missoula	\$676,149,195	\$181,037,312	2,853
	UM-Western	Dillon	\$41,124,420	\$13,293,922	589

Source: Property Casualty Insurance Information System (PCIS) maintained by the Montana Department of Administration's Risk Management and Tort Defense Division (March, 2007).

3.2.1.2 State Real Property

The State of Montana owns real property scattered throughout the state, including State highways, government office property, land in waterways, and School Trust property. The most significant land holdings are classified as School Trust property. A summary of the State real property, exclusive of highways and waterways, is shown in **Table 3.2.1-3**.

The Montana Department of Natural Resources and Conservation (DNRC) administers all School Trust land granted to the State through the Federal Enabling Act of 1899. This act provided over 5 million acres to the State to be managed for common school support. The trust beneficiaries include the K-12 public schools, institutions for higher education, Pine Hills Youth Correctional Facility, Montana School for the Deaf and Blind, and Montana Veteran's Home. The current surface acreage is less than the original grant due to land exchanges, incorporation by tribal reservations, and lands deeded before the Enabling Act.

Table 3.2.1-3 Montana State Trust Land Acreage

Land Grant	Original Acreage	Current Surface Acreage	Current Mineral Acreage
Common School	5,188,000	4,622,195	5,611,914
Other Land Grants			
MSU- Morrill Grant	90,000	63,456	77,249
MSU- Second Grant	50,000	31,424	47,077
Montana Tech of UM	100,000	59,440	86,267
State Normal School	100,000	63,455	83,540
School for the Deaf and Blind	50,000	36,461	41,171
State Reform School	50,000	67,855	78,127
Veterans Home	0	1,276	1,276
Public Buildings	182,000	186,991	228,322
TOTALS	5,856,720	4,809,186	5,840,236

Source: MDNRC, 2007a

3.2.2 Critical Facilities

3.2.2.1 Essential Facilities

Essential Facilities are those that are critical to functioning in the event of a disaster and include: hospital and trauma care centers, police and fire stations, emergency operations centers, and military facilities. Hospitals and trauma centers provide emergency care to the injured. Functional loss due to hazard damage can severely impact the ability to provide immediate care and reduce loss of life during a disaster event. The American Hospital Association classifies medical facilities by the number of beds. Large medical facilities are those that have greater than 150 beds. Medium hospitals are those that have 50-150 beds. In Montana, there are seven large hospitals, and of those, there are four Level II Trauma Centers recognized by the American College of Surgeons (**Table 3.2.2-1**). There are 26 medium hospitals throughout Montana. **Figure 3.2.2-1** identifies the large and medium hospitals, Type II trauma centers, and State and federal emergency operations centers. Note that the data used to display the hospitals was obtained from FEMA's HAZUS-MH database. This database is known to have errors, and therefore, the hospital locations may be inaccurate and other large and medium hospitals may be missing.

Table 3.2.2-1 Major Hospitals and Trauma Centers in Montana

Hospital Name	Address	City	Trauma	Number of Beds
Benefis Healthcare	1101 26th Street South	Great Falls	Level II	467
Billings Clinic	2800 10th Avenue North	Billings	Level II	305
St Vincent Healthcare	1233 North 30th Street	Billings	Level II	278
Northern Montana Hospital	30 13th Street	Hayre		212
St Patrick Hospital	500 West Broadway	Missoula	Level II	190
Montana State Hospital		Warm Springs		174
Holy Rosary Health Care	2600 Wilson Street	Miles City		151

Source: AHA, 2004

Emergency operations centers are essential for coordinating and conducting disaster response. They include local police and fire stations, local and State emergency operations centers, National Guard headquarters and operations, and Federal military facilities. Loss of function of these centers may adversely affect communication and direct response activities. Other facilities, such as schools and armories, are used for emergency shelters to house displaced populations. State and Federal emergency operations centers are shown below in **Table 3.2.2-2**.

Table 3.2.2-2 Emergency Operations Centers

Name	Address	City	Function
Montana Army National Guard	Fort Harrison	Helena	National Guard support for disaster response
Army Aviation Support Facility	Helena Airport	Helena	Helicopter support to the Army National Guard
Montana Air National Guard	Malmstrom Air Force Base	Great Falls	Personnel and air support for natural disasters. Civil engineering support for base and contingency operations.
Air Force ICBM Operations Groups	Malmstrom Air Force Base	Great Falls	Launch, monitoring, and security for the Intercontinental Ballistic Missile complex
Montana Highway Patrol	Fort Harrison	Helena	Law enforcement support for disaster response
Montana Disaster & Emergency Services Division	Fort Harrison	Helena	Coordination, Logistics, and Communications for disaster response

3.2.2.2 Transportation Systems

Transportation Systems are critical for the movement of the population, mobilization of resources to respond to disasters, and the ability to import resources to restore normality to the population. There are approximately 70,000 miles of public roads and highways in Montana. Approximately 11,000 miles of highway and 2,100 bridges are maintained by the Montana Department of Transportation (MDT). The Federal interstate system consists of about 1,200 miles within Montana. **Figure 3.2.2-2** shows the distribution of State and Federal highways throughout the state.

Approximately 6,150 miles of rail lines traverse Montana. The major rail system operators are Burlington Northern and Montana Rail Link, respectively maintaining 3,900 miles and 1,540 miles of track. Amtrak has twelve passenger stations, all located along the section of northern Montana termed the High Line (area flanked by Highway 2) in northern Montana.

Montana has 15 State-owned airports, 118 public-use airports, and 350 private-use airports. Of the 118 public-use airports, the following cities are serviced by regional or commercial carriers: Billings, Bozeman, Butte, Glasgow, Glendive, Great Falls, Havre, Helena, Kalispell, Lewistown, Miles City, Missoula, Sidney, and Wolf Point. **Figure 3.2.2-2** shows the location of State-owned and commercial carrier public-use airports.

3.2.2.3 Utility Systems

The most essential utility systems in Montana include major electrical generating facilities, transmission networks, natural gas pipelines and petroleum pipelines. These facilities maintain light, heat, and energy resources for Montana and much of the northwestern United States. The location of these facilities in hazard areas increases vulnerability to service disruption and shortages of energy resources. Other critical utility systems, such as potable water supply and wastewater facilities, are owned and operated at the local level.

Montana annually generates about 17 billion kilowatt hours of electricity, primarily through coal-fired plants and hydroelectric facilities (EIA, 1999). Major power generating facilities, exclusive of hydroelectric facilities, are shown in **Table 3.2.2-3**.

Table 3.2.2-3 Major Power Generation Facilities in Montana

Name	Location
Colstrip Energy L P Rosebud Power Plant	Colstrip
Lewis & Clark Station	Sidney
MDU - Miles City	Miles City
Montana Dakota Utilities Glendive Genera	Glendive
Montana Power Co Frank Bird Plant	Billings
PP&L Montana Colstrip Steam Electric Station	Colstrip
PPL Montana - J.E. Corette Plant	Billings
Shell Western EPI Pennel 30	Baker
Yellowstone Energy Limited Partnership	Billings

Source: EIA, 1999

The locations of major electrical transmission lines, natural gas pipelines and petroleum product pipelines are shown on **Figure 3.2.2-3**.

3.2.2.4 High Potential Loss Facilities

High Potential Loss Facilities (HPLF) are those likely to cause heavy losses if significantly damaged. For this evaluation, HPLF include dams, military installations, universities, and research facilities.

3.2.2.4.1 Dams

Approximately 2,852 dams are located within the State of Montana (USACE NID, 2004). Of these dams, 182 are "high-hazard dams", indicating they are upstream from populated areas (DNRC, 2007). A high-hazard dam is any dam that impounds 50 acre feet of water or more and could cause loss of life downstream if it fails. High-hazard is not a reference to the dam's condition, but rather the potential for the loss of life downstream if the dam were to fail. Of the high-hazard dams, 32 are over 100 feet high. Of these 32 dams, 14 store more than 100,000 cubic feet of water (**Table 3.2.2-4**).



The county with the most high-capacity, high-hazard dams is Lewis and Clark, which has 3 large dams along the Missouri River and one along the North Fork of the Sun River (**Table 3.2.2-4**). Hungry Horse Dam is the highest dam, at 564 feet. Fort Peck Dam has the largest storage capacity, at 19 million acre-feet.

Picture 3.2-1
Hungry Horse Dam along the
South Fork of the Flathead River

Source: USDI BOR, 2004.

Table 3.2.2-4 Montana High Hazard Dams with >100 Feet High with >100,000 Acre-Feet of Storage

Dam Name	River	Nearest City	NID Height (ft)	NID Storage (acre-ft)	Drainage Area (sq mi)	County(s)	Owner Name
Hungry Horse	South Fork Flathead River	Hungry Horse	564	3,588,000	1,640	Flathead	USDI BOR
Yellowtail (Bighorn Lake)	Bighorn River	Saint Xavier	525	1,427,340	19,650	Big Horn	USDI BOR
Libby (Lake Koocanusa)	Kootenai River	Libby	422	6,027,000	8,985	Lincoln	USACE
Fort Peck Dam	Missouri River	Nashua	256	19,100,000	57,725	McCone, Garfield, Valley	CENWO
Canyon Ferry	Missouri River	Canyon Ferry	225	2,051,000	15,860	Lewis and Clark	USDI BOR
Tiber	Marias River	Loma	206	1,424,478	4,923	Liberty	USDI BOR
Gibson (Beaver Creek)	North Fork Sun River	Simms	199	121,981	575	Teton, Lewis and Clark	USDI BOR
Kerr	Flathead River	Agency	194	1,791,000	7,096	Lake	PPL & Salish-Kootenai Tribe
Noxon Rapids	Clark Fork, Pend Oreille River	Noxon	179	400,000	21,800	Sanders	Washington Water Pwr Co
Clark Canyon	Beaverhead River	Dillon	148	328,979	1,550	Beaver-head	USDI BOR
Hauser Dam	Missouri River	Craig	125	139,890	16,876	Lewis and Clark	PPL
Holter Dam	Missouri River	Craig	124	306,000	17,150	Lewis and Clark	PPL
Fresno	Milk River	Havre	111	229,288	2,828	Hall	USDI BOR
Lake Sherburne	Swiftcurrent Creek	Babb	109	110,679		Glacier	USDI BOR

Source: Montana DNRC, 2007

3.2.2.4.2 Military Facilities

Montana has a large military complex in Great Falls, which includes the 120th Fighter Wing of the Montana Air National Guard and the United States Air Force 819th Red Horse Squadron. In addition, the Montana Army National Guard has facilities in the following cities: Anaconda, Belgrade, Billings, Bozeman, Butte, Chinook, Culbertson, Dillon, Glasgow, Glendive, Great Falls, Hamilton, Harlowton, Havre, Helena, Kalispell, Lewistown, Livingston, Malta, Miles City, Missoula, and Sidney.

Montana is the home of approximately 200 Minuteman Inter-Continental Ballistic Missiles (ICBM), which are overseen by Malmstrom Air Force Base in Great Falls. The Minuteman silos are scattered over various locations in north-central and north-eastern Montana. The missile silos are over 40 years old, and have been updated with new warheads several times. Under the Start II Treaty, the Air Force will "deMIRV" the remaining Minuteman III Missiles now in service, changing them from three-warhead to single-warhead weapons, which are expected to remain operational in the American West until 2020 (Air Force Magazine, 2001).

3.2.2.4.3 Colleges and Universities

Colleges and universities are considered potential high loss facilities for several reasons. First, over 50,000 students attend colleges and universities in Montana. The higher education facilities and surrounding area house many of these students during the academic year and pose specific disaster concerns. In addition, these facilities often house expensive

research equipment, much of it owned by the State. All colleges and universities home based in Montana, not just those that are state-owned, are listed in **Table 3.2.2-5**.

Table 3.2.2-5 Universities and Colleges in Montana

College	Average Enrollment (full-time students)
Community Colleges	
▪ Dawson Community College	417
▪ Flathead Valley Community College	not reported
▪ Miles Community College	458
Technical Colleges	
▪ The University of Montana-Helena College of Technology	728
▪ Montana Tech College of Technology of The University of Montana	426
▪ The University of Montana-Missoula College of Technology	10,357
▪ Montana State University-Billings College of Technology	525
▪ Montana State University-Great Falls College of Technology	1,241
State Colleges and Universities	
▪ The University of Montana-Missoula	11,572
▪ Montana Tech of The University of Montana	1,913
▪ The University of Montana - Western	1,159
▪ Montana State University-Bozeman	10,748
▪ Montana State University-Billings	4,207
▪ Montana State University-Northern	1,450
Tribal Colleges	
▪ Blackfeet Community College	395
▪ Chief Dull Knife College	531
▪ Fort Belknap College	665
▪ Fort Peck Community College	412
▪ Little Big Horn College	258
▪ Salish Kootenai College	108
▪ Stone Child College	278
Private Colleges	
▪ Carroll College	1,317
▪ University of Great Falls	630
▪ Rocky Mountain College	817

Sources: Montana, 2007; Princeton Review, 2007

The eight main campuses of the Montana University System (UM-Missoula, MSU-Bozeman, Montana Tech of UM (Butte), MSU-Billings, UM-Helena COT, MSU-Great Falls COT, MSU-Northern (Havre), and UM-Western (Dillon) have completed draft PDM plans that included detailed hazard assessments.

3.2.2.4.4 Research Facilities

The majority of university research in Montana, on a wide variety of topics, is conducted at the two universities: the University of Montana in Missoula and Montana State University in Bozeman. In addition, several Federal agencies conduct research, including the U.S. Department of Agriculture (Agricultural Research Service, Forest Service, Natural Resource

Conservation Service) and US Department of Interior (Bureau of Land Management, Fish, Wildlife & Parks Service, and the National Park Service).

University and Federal agencies often establish long-term working relationships at fixed facilities scattered around the state. For example, The Fort Keogh Livestock and Range Research Laboratory, operated by the U.S. Department of Agriculture's (USDA) Agricultural Research Service (ARS), covers 55,000 acres of native rangeland, planted dry land, irrigated pasture and irrigated cropland near Miles City. ARS, the USDA's primary scientific research agency, operates the facility in cooperation with Montana State University's Agricultural Experiment Station. Fort Keogh researchers focus on beef cattle genetics and reproductive physiology, range animal nutrition, and range ecology and management. A USDA facility since 1924, Fort Keogh has more than 40 permanent employees, as well as 25 working horses and a herd of about 1,500 cows (FLCTT, 2004).

Two bio-medical research laboratories are located in Montana: Rocky Mountain Labs and the McLaughlin Research Institute. The McLaughlin Research Institute is an independent, non-profit research organization in Great Falls, Montana. Research at the institute focuses on understanding the genetic control of normal development and disease susceptibility using the mouse as a model system (MRI, 2004).

Rocky Mountain Laboratories in Hamilton, Montana, a Bio-Safety Level 2 laboratory, studies infectious microbes that cause disease in humans and animals. RML is part of the National Institute of Allergy and Infectious Diseases (NIAID), a component of the National Institutes of Health. NIAID conducts and supports research that strives to understand, treat, and ultimately prevent the myriad infectious, immunologic, and allergic diseases that threaten hundreds of millions of people worldwide (RML, 2007).

3.2.2.5 Hazardous Material Facilities

Hazardous Material Facilities may or may not be critical for emergency operations; however, these facilities are critical based on their potential to harm the population and the environment. Through intentional or accidental release, the population is at risk should an event result in the uncontrolled release of hazardous substances.

In Montana, approximately 1,190 miles of Federal interstate highway are considered major hazardous material transportation routes. According to the Bureau of Transportation Statistics, there are over 3,310 miles of railroad along which hazardous materials are transported. In addition, 3,834 miles of pipelines transport natural gas, crude oil, and refined petroleum products. These transportation routes are shown on **Figure 3.2.2-4**.

The list of hazardous material facilities was generated by querying the Toxics Release Inventory (TRI) database that is publicly available through the U.S. Environmental Protection Agency (EPA, 2004b). The database contains information on specific toxic chemical releases and other waste management activities reported annually by certain covered industry groups and Federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986, which requires facilities to use their best readily-available data to calculate their releases and waste management estimates. If facilities do not have actual monitoring data, submitted values are derived from various estimation techniques. Forty-eight facilities are included on the TRI database and their locations are shown on **Figure 3.2.2-4**. The 10 facilities with the greatest volume of wastes emissions are shown in **Table 3.2.2-6**.

Figure 3.2.2-4 Hazardous Material Facilities

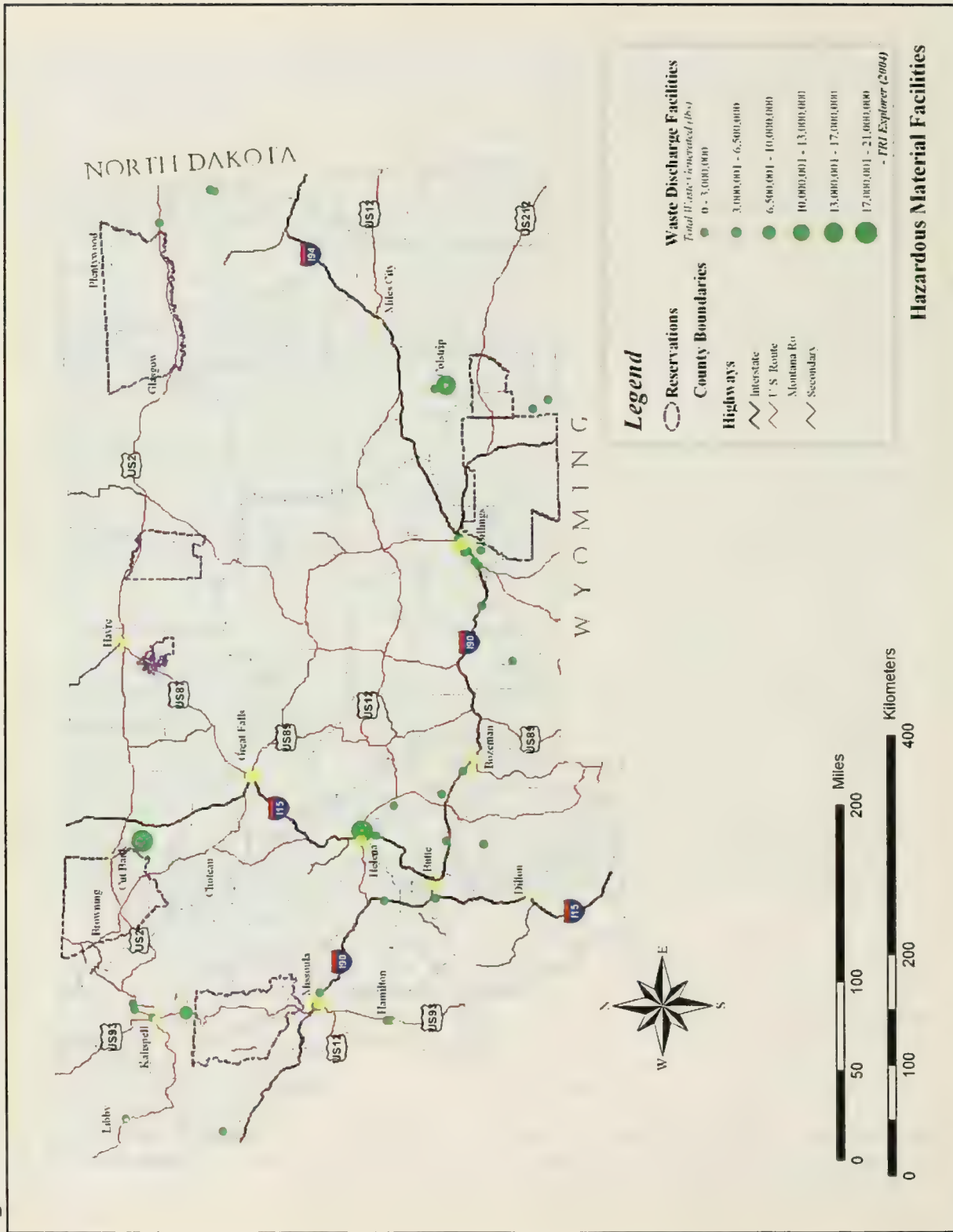


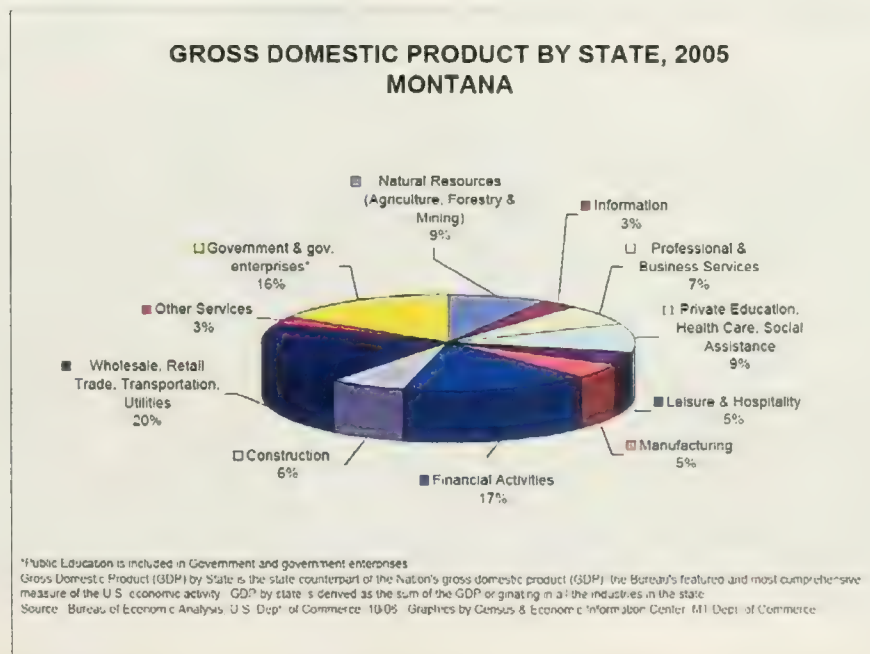
Table 3.2.2-6 Top Ten Facilities for Waste Emissions

Name	City	On- and off-Site Releases (lbs)
Montana Resources LLP	Butte	26,363,867
Colstrip Steam electric Station	Colstrip	12,128,727
Montana Tunnels Mining	Jefferson City	11,877,274
Golden Sunlight Mines	Whitehall	2,444,512
Smurfit-Stone Container	Missoula	1,561,200
SMC Nye Mine Site	Nye	1,071,346
Plum Creek MDF Inc.	Columbia Falls	860,848
Colstrip Energy LP/Rosebud Power Plan	Colstrip	411,030
Stillwater Mining Co East Boulder Mine	Big Timber	397,501
Exxon-Mobil Billings Refinery	Billings	251,457

Source: EPA, 2007b. <http://www.epa.gov/tri/>

3.2.3 Montana Economy

Montana's economy was built on natural resource extraction industries: agriculture, forestry, and mining. Over the last 25 years Montana's economy has evolved to be dependent on service, finance/insurance/real estate, and government sectors. These three sectors represent over 50 percent of the Montana's Gross State Product (GSP), whereas 25 years ago these sectors represented 38 percent (USDC BEA, 2003). As a percentage of the GSP, agriculture and mining have been cut in half and manufacturing and construction are two-thirds the percentage they were 25 years ago. The evolution of the economy appears to be continuing in that direction, with less reliance on forestry, farming, mining, and manufacturing and more dependence on the government and service sectors (USDC BEA, 2003). **Figure 3.2.3-1** shows Montana's GSP for the year 2005.

Figure 3.2.3-1 Gross State Product by Major Industry in 2005 (Source: CEIC, 2007)

As of the 2000 Census, Montana contained a civilian labor force of 480,000 people, with a statewide unemployment rate of 4.9 percent. During the 1990s, employment shifted away from traditional, basic industry to retail trade and service-sector jobs (education/health care/real estate/trade/tourism). The labor force currently is split, with 23 percent in basic industries (agriculture/mining/manufacturing) and 77 percent in derivative industries (trade and services). The state's per-capita income in 2000 was \$22,569. Montana is one of only five states in the United States that does not levy a state sales tax.

3.2.3.1 Personal Income by County

Personal income is the income received by personal production, both from government and business transfer payments, and from government interest (which is treated like a transfer payment). It is calculated as the sum of wage and salary disbursements, other labor income, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustments, personal dividend income, personal interest income, and transfer payments to persons, less personal contributions for social insurance (USDC BEA, 2004).

This measure of income is calculated as the personal income of the residents of a given area divided by the resident population of the area. In computing per capita personal income, the U.S. Department of Commerce (USDC BED, 2004) uses the Census Bureau's annual midyear population estimates. All state and local area dollar estimates are in current dollars (not adjusted for inflation).

The personal income of Montana has historically been significantly less than the national average. From 1970 to 2000, Montana's per capita personal income dropped from 89 percent to 76 percent of the national average. Across the state, there are also significant differences in personal income. **Figure 3.2.3-2** shows the 2005 average personal income by county and **Figure 3.2.3-3** shows the percent change between 2004 and 2005 by county. The counties with higher urban populations typically have higher personal incomes. The principal exceptions are the counties that have had a predominant industrial mining base (**Table 3.2.3-1**).

Table 3.2.3-1 Average Personal Income by Montana County (5 Highest and 5 Lowest)

Highest Personal Income	2002	2003	2004	2005
Yellowstone	\$28,778	\$29,562	\$31,220	\$33,215
Gallatin	\$27,238	\$28,929	\$30,560	\$32,434
Valley	\$26,290	\$29,016	\$31,048	\$31,328
Silver Bow	\$25,783	\$27,256	\$29,193	\$31,324
Lewis and Clark	\$27,695	\$28,470	\$29,721	\$31,151
Lowest Personal Income	2002	2003	2004	2005
Sanders	\$18,416	\$19,167	\$19,577	\$20,164
Roosevelt	\$18,705	\$20,435	\$21,001	\$20,755
Big Horn	\$16,300	\$17,929	\$19,251	\$20,866
Blaine	\$15,978	\$17,221	\$19,694	\$20,893
Musselshell	\$17,583	\$19,275	\$20,106	\$21,215
Montana Average	\$25,065	\$26,177	\$27,657	\$29,015

Source: USDC BEA, 2007

Figure 3.2.3-2 Average Personal Income (Source: CEIC, 2007)

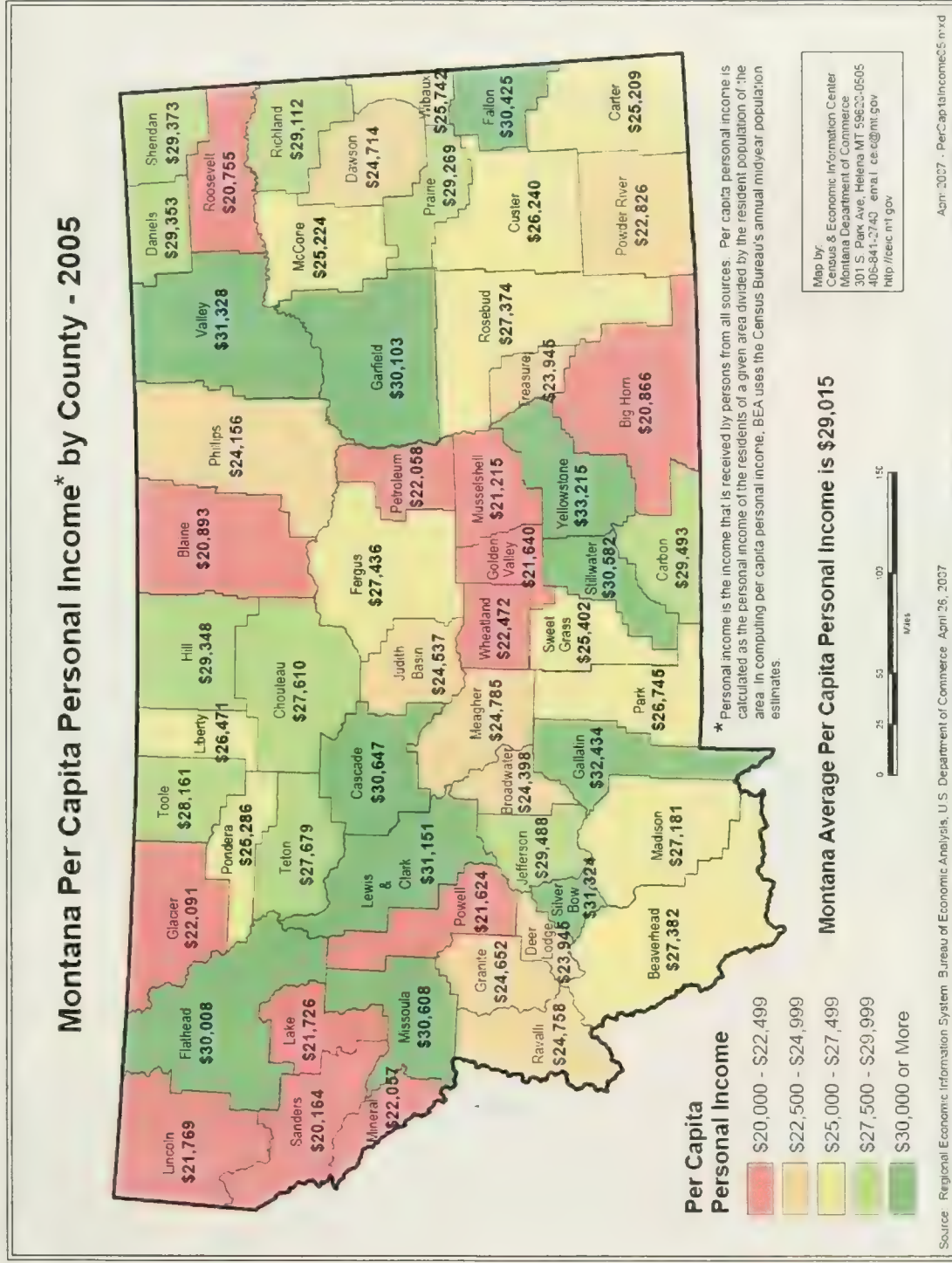
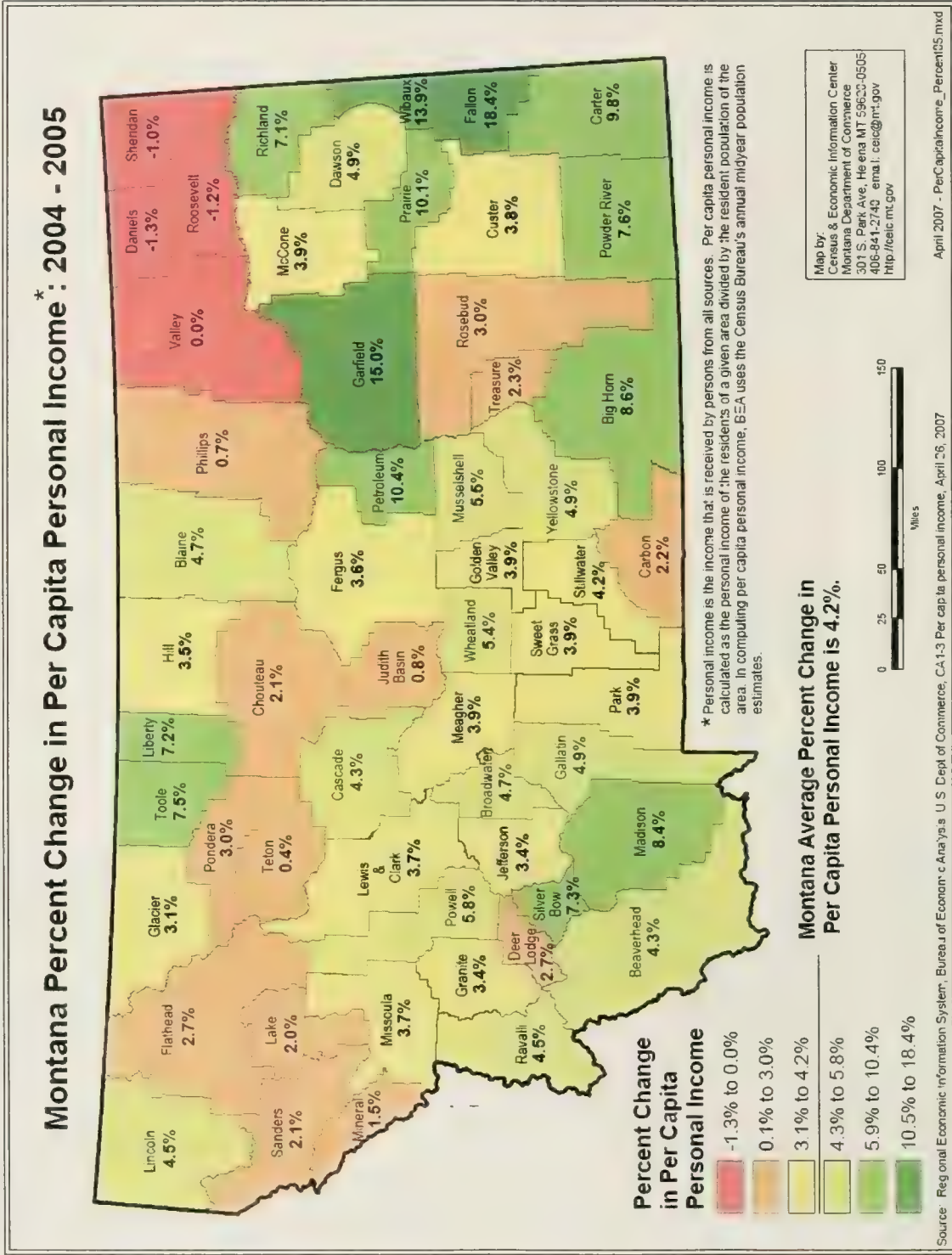


Figure 3.2.3-3 Percent Change in Per Capita Personal Income (Source: CEIC, 2007)



3.2.4 Population

3.2.4.1 Total Population

With 944,632 (2006 estimate) persons, Montana ranks 44th in total state population in the U.S. (**Table 3.2.4-1**). Montana is ranked 48th amongst other states for population density, with 6.2 persons per square mile, compared to a national average of 79.6 persons per square mile. The growth in population varies greatly across the state, with the urban areas and western counties experiencing significant growth and some rural eastern counties with net losses. This trend is projected to continue through 2030 (**Table 3.2.4-1** and **Figure 3.2.4-1**). Between the years 2000 and 2006, Gallatin and Flathead counties experienced 18.5 and 14.1 percent growth, respectively while Garfield County ranked 3,124 of 3,141 counties in the country for growth (19.5 percent decrease). The continued population loss occurring now and predicted in the future for rural Montana (**Figure 3.2.4-1**) reinforces their inability to produce local initiatives such as growth policies or comprehensive plans. In many cases, the Local PDM Plan is the only planning mechanism that exists, and jurisdictions have inserted or discussed more than just natural hazards easily mitigation by current FEMA programs.

Table 3.2.4-1 Counties with the Highest and Lowest Populations

Counties w/ Highest Population	2006 (estimate)	2000 Census
Yellowstone	138,213	129,352
Missoula	101,417	95,802
Flathead	85,314	74,471
Gallatin	80,921	67,831
Cascade	79,385	80,357
Counties w/ Lowest Population	2006 (estimate)	2000 Census
Petroleum	474	493
Treasure	680	861
Wibaux	909	1,068
Prairie	1,074	1,199
Golden Valley	1,150	1,042
Montana	944,632	902,195

Source: CEIC, 2007

The state population is expected to be 1,044,898 by the year 2030, a predicted 15.8 percent change from 2000 to 2030 (**Figure 3.2.4-2**). This projected growth ranks Montana 27th in the nation. The median age is projected to increase to 46 by the year 2030.

Table 3.2.4-2 General State Population Statistics

Parameter	1980	1990	2000	2030 (projected)
Census Population	786,690	799,065	902,195	1,044,898
Percent increase from last census	13.30%	1.60%	12.90%	15.8%
State Median age	28.4	33.8	37.5	46

Source: MDPHHS, 2006

Figure 3.2.4-1 Population Projections; Percent Change 2000 to 2030

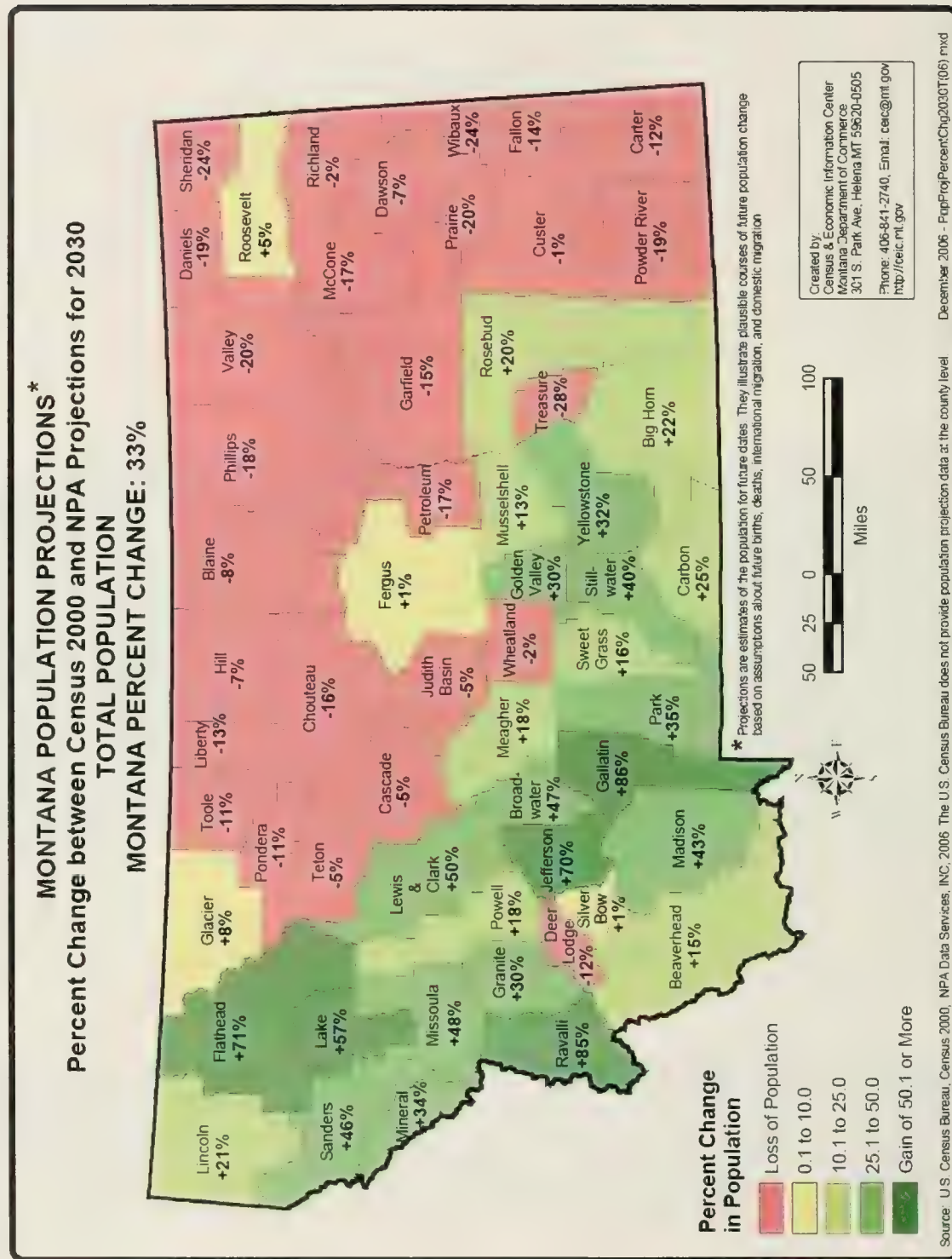
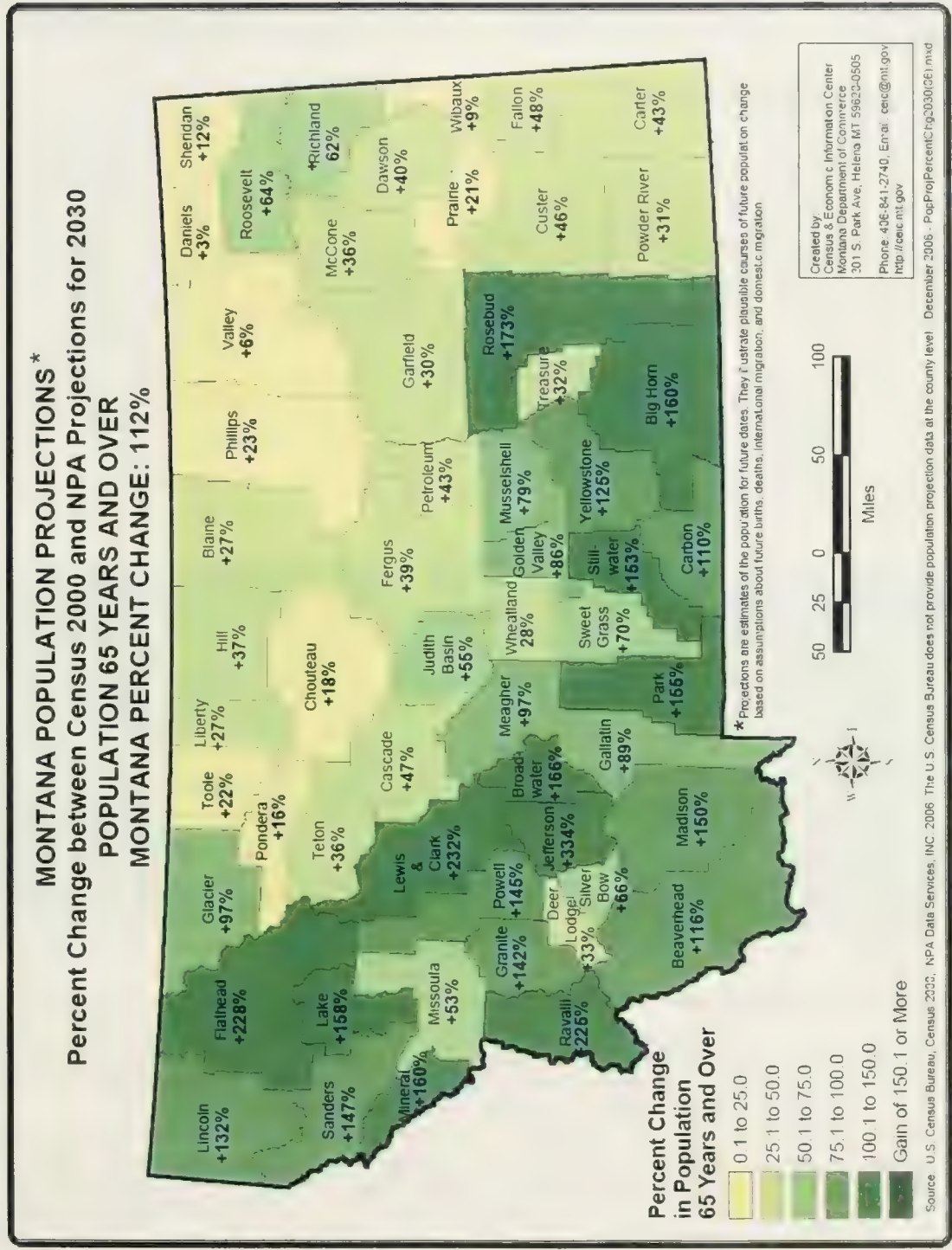


Figure 3.2.4-2 Population Projections 65 Years and Over; Percent Change 2000 to 2030



Montana is predominantly white with approximately 91 percent of the 2000 population reporting Caucasian as the primary race, compared to 75 percent in the nation. Eleven American Indian tribes make up the largest minority population in Montana, representing approximately 6.2 percent of the total population, the 5th highest state in the nation (Montana DPHHS, 2006)

3.2.4.2 Sensitive Populations

3.2.4.2.1 Elderly

The percentage of elderly population (65 and over) in Montana increased from 10.7 to 13.4 percent between 1980 and 2000 (**Table 3.2.4-3**). This trend is expected to accelerate in the next 20 years, so that by 2025, Montana will experience one of the most dramatic demographic transformations in its history. As the Baby Boom generation (those born between 1946 and 1964) reaches retirement age, the proportion of Montana's population classified as elderly is expected to increase from 13.1 percent in 1995 to 25 percent in 2030. Projections indicate that Montana's population 65 and over will increase 112 percent between 2000 and 2030, while elderly populations in Flathead, Lewis and Clark, Jefferson and Ravalli counties are projected to increase by over 200 percent (**Figure 3.2.4-3**). Among the 50 states and the District of Columbia, Montana was ranked 23rd for the highest proportion of elderly in 1995 and is projected to have the 3rd highest proportion of elderly in 2025 (Montana DPHHS, 2001).

Table 3.2.4-3 State Aging Population Statistics

Demographic Parameter	1980	1990	2000
60 and over population eligible for OAA services	119,240	140,813	158,894
% increase of 60 and over from last census	22.7%	18.1%	12.8%
60 and over as a % of total state population	15.2%	17.6%	17.6%
65 or over state population	84,559	106,497	120,949
% increase of 65 and over from last census	23.0%	25.9%	13.6%
65 and over as a % of total state population	10.7%	13.3%	13.4%
85 and over state population	8,837	10,676	15,337
% increase of 85 and over from last census	42.2%	20.8%	43.7%
85 and over as a % of total state population	1.1%	1.3%	1.7%

Source: Montana DPHHS, 2001

3.2.4.2.2 School Populations

In Montana, the echo of the Baby Boom peaked at 14,141 births in 1984. The birth rate has declined almost every year since 1984 to 10,800 in 1996. In the past 5 years the birth rate seems to have stabilized to around 10,800 births per year.

The number of school age children (the total number ages 5-18) peaked at 187,568 in 1992, decreased to 172,674 in 2001, and is projected to be 159,700 in 2005. If the birth rate continues at 10,800 per year, the available school age population is expected to level out at 151,200 in 2015. Migration both in and out of the state is expected to be the primary factor affecting the population growth or decrease in the school age population (Carlson, 2001).

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3.3 HAZARD PROFILES

3.3.1 Communicable Disease

Communicable diseases, sometimes called infectious diseases, are illnesses caused by organisms such as bacteria, viruses, fungi and parasites. Sometimes the illness is not due to the organism itself, but rather a toxin that the organism produces after it has been introduced into a human host. Communicable diseases may be transmitted (spread) either by: one infected person to another, from an animal to a human, from an animal to an animal, or from some inanimate object (doorknobs, table tops, etc.) to an individual. A **pandemic** is a global disease outbreak.

Communicable disease could be devastating to the population or economy of the State. Human diseases, when on an epidemic scale, can lead to high infection rates in the population causing quarantines and mass fatalities. Contagious animal and plant diseases could distress the agricultural community affecting the food supplies and the livestock industry.

3.3.1.1 Background

Following is a general description of some communicable diseases that have either affected Montana in the past, or have been profiled on a national level in recent years. It should be noted that this list is by no means inclusive of all communicable diseases that could affect the population or economy of the State of Montana.

3.3.1.1.1 Human Diseases

Viral Diseases

Hantavirus

Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in the aerosolized virus. Aerosolization occurs when dried materials contaminated by rodent excreta or saliva are disturbed. HPS cannot be transmitted from one person to another. HPS was first recognized in 1993 after a cluster of previously healthy individuals who lived in the Four Corners area of New Mexico acquired the illness. It has since been identified throughout the U.S. Although rare, HPS is potentially deadly (CDC, 2007).

HIV and AIDS

HIV (human immunodeficiency virus) causes AIDS (acquired immunodeficiency syndrome). HIV is different from most other viruses because it attacks the immune system and our ability to fight infections. HIV finds and destroys a type of white blood cell that the immune system must have to fight disease. AIDS is the final stage of HIV infection and is fatal. It can take years for a person infected with HIV to reach this stage.

HIV is a fragile virus and cannot live for very long outside the body. As a result, the virus is not transmitted through day-to-day activities such as shaking hands, hugging, or a casual kiss. HIV is primarily found in the blood, semen, or vaginal fluid or an infected person and is transmitted in three main ways: having sex with someone infected with HIV, sharing needles and syringes with someone infected with HIV, or being exposed (fetus to infant) to HIV before or during birth or through breast feeding.

Norovirus

Noroviruses are a group of highly contagious viruses that cause acute gastroenteritis in humans. Noroviruses are transmitted primarily through the fecal-oral route, either by consumption of fecally contaminated food or water or by direct person-to-person spread. The incubation period for norovirus-associated gastroenteritis in humans is usually between 24 and 48 hours, but cases can occur within 12 hours of exposures. Symptoms usually last from 24 to 60 hours. Recovery is usually complete and there is no evidence of any serious long-term effects (CDC, 2007).

Influenza and Pandemic Influenza

Influenza is a contagious, upper-respiratory disease caused by many different strains of influenza viruses. While many people use the imprecise term "flu" to describe 24- or 48-hour bouts of illness, real influenza can interfere with normal daily activities for as long as a week. Influenza is not a minor inconvenience. As many as 200,000 Americans are hospitalized because of it each year, and as many as 36,000 die of the disease or complications associated with it.

A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity, and for which there is no vaccine. The disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in very short time. Public health officials are closely monitoring a current outbreak of the H5N1 influenza virus among poultry and wild birds in Asia, Europe, and Africa. More than half of the people infected with the H5N1 virus have died. Most of these cases are all believed to have been caused by exposure to infected poultry. There has been no sustained human-to-human transmission of the disease, but the concern is that H5N1 will evolve into a virus capable of human-to-human transmission.

Scientists and health officials believe a pandemic flu could pose a significant threat to the health, economy, and way of life in the U.S. Efforts are under way at the Montana Department of Public Health and Human Services to plan for the complex issues and serious impacts that a new influenza pandemic could cause in Montana.

SARS

Severe Acute Respiratory Syndrome (SARS) is a viral respiratory illness that was recognized as a global threat in March 2003, after first appearing in southern China in November 2002. The primary way that SARS appears to spread is through close person-to-person contact. It is thought to be transmitted most readily by respiratory droplets produced when an infected person coughs or sneezes. The virus also can spread when a person touches a surface or object contaminated with infectious droplets and then touches his or her mouth, nose, or eye(s). In addition, it is possible that SARS might be spread more broadly through the air or by other ways that are not now known. The illness usually begins with a high fever that is sometimes associated with chills or other symptoms, including headache, general feeling of discomfort and body aches. Some people also experience mild respiratory symptoms at the outset. From November 2002 through July 2003, a total of 8,098 people worldwide became sick with SARS. Of these, 774 died. By late July 2003, no new cases were being reported, and the global outbreak was considered over. In the U.S., only eight persons were laboratory-confirmed as SARS cases. There were no SARS-related deaths in the U.S. All of the eight persons with laboratory-confirmed SARS had traveled to areas where SARS transmission was occurring (CDC, 2007).

West Nile Virus

West Nile virus (WNV) is a potentially serious illness. West Nile Virus is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall.

Most often, WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread WNV to humans and other animals when they bite. In a very small number of cases, WNV also has been spread through blood transfusions, organ transplants, breastfeeding and even during pregnancy from mother to baby (CDC, 2007). Although WNV is a potentially serious illness, about 80 percent of those infected notice no symptoms and develop immunity. About 20 percent experience mild flu-like symptoms. About 1 in 150 people infected with WNV will develop severe illness, and about one in 1,000 cases is fatal. People over the age of 50 are at greatest risk of serious illness.

Bacterial Diseases

E. coli

Escherichia coli O157:H7 (*E.coli*) is a leading cause of foodborne illness. Based on a 1999 estimate, 73,000 cases of infection and 61 deaths occur in the U.S. each year. Infection with *E. coli* occasionally leads to kidney failure. People can become infected with *E.coli* in a variety of ways. Though most illness has been associated with eating undercooked, contaminated ground beef, people have also become ill from eating contaminated bean sprouts or fresh leafy vegetables such as lettuce and spinach. Person-to-person contact in families and child care centers is also a known mode of transmission. In addition, infection can occur after drinking raw milk and after swimming in or drinking sewage-contaminated water. People generally become ill from *E.coli* two to eight days after being exposed to the bacteria (CDC, 2007).

Salmonella

Salmonella is a group of bacteria that can cause diarrheal illness in humans. They are microscopic living creatures that pass from the feces of people or animals, to other people or other animals. *Salmonella* are usually transmitted to humans by eating food contaminated with animal feces. Contaminated foods usually look and smell normal. The illness usually lasts 4 to 7 days, and most persons recover without treatment. However, in some persons the *Salmonella* infection may spread from the intestines to the blood stream, and then to other body sites and can cause death unless the person is treated promptly with antibiotics. The elderly, infants, and those with impaired immune systems are more likely to have a severe illness (CDC, 2007).

Shigella

Shigellosis is an infectious disease caused by *Shigella* bacteria and is one of the most contagious types of diarrhea caused by bacteria. It is a common cause of waterborne outbreaks in the U.S., though most of these outbreaks occur in recreational water rather than in drinking water. Infection with *Shigella* occurs through person-to-person contact when individuals eating contaminated food either from infected food handlers or fields contaminated with sewage, or swallowing contaminated drinking or recreational water. The bacteria can get into groundwater and private wells through discharges from faulty septic systems or sewage treatment plants. Wells may be more vulnerable to such contamination after flooding. *Shigella* is found in every part of the U.S. and throughout the world, and is also a serious health risk for military personnel deployed in regions where the disease is endemic. Worldwide, there are 165 million new cases of shigellosis each year, causing over one million deaths. The World Health Organization has selected development of a shigellosis vaccine as one of its highest priorities (CDC, 2007).

3.3.1.1.2 Animal and Plant Diseases

Agriculture dominates Montana's economy contributing \$2,324 billion per year with \$1,038 billion coming from crops and \$1,286 billion coming from livestock (USDA National Agriculture Statistics Service, 2006). Wheat is Montana's most important crop followed by hay, barley, and sugar beets. Montana's most important livestock commodities are cattle and calves, followed by hogs and pigs, and sheep and lambs.

The security of the state's crop and livestock industry is of paramount importance to Montana's economy. Some of the animal and plant diseases with the potential to threaten the state's agricultural industry are discussed below.

Anthrax

Anthrax, a highly infectious and fatal disease of mammals and humans, is caused by a relatively large spore-forming bacterium. There are three types of anthrax: cutaneous (spread through contact with the skin), inhalation, and gastrointestinal (caused by ingesting infected meat or milk). About 95 percent of human anthrax infections occur when the bacterium enters a cut or abrasion on the skin during the handling of the animal or animal products.

Grazing animals are typically infected when they ingest or inhale spores on contaminated vegetation or soil. Animals primarily affected are cattle, bison, sheep, goats and horses. In addition, wildlife species such as deer, elk, moose and antelope, as well as wild carnivores, such as coyotes, bobcats, and mountain lions, can also be affected. Typically, the disease in livestock and wildlife appears following periods of climatic or ecological changes, such as heavy rains or flooding preceded by drought. Spores may also be exposed by wind or water erosion, as well as other soil disturbances, such as excavations. These factors make it possible for an outbreak to occur one year, but not the next.

Most outbreaks occur in areas where animals have previously died of anthrax, as the spores remain viable for decades. The predominant sign in cattle with anthrax is a progression from a normal appearance to dead in a matter of hours. Most animals are simply found dead. Once an outbreak begins in the herd animals may be observed with signs of weakness, fever, excitement followed by depression, difficulty breathing, uncoordinated movements and convulsions. After death, the animal's body rapidly decomposes (Cattle Today, 2007). Anthrax is a potentially fatal human pathogen. For animals and humans, anthrax is a reportable disease in the United States.

Brucellosis

Brucellosis causes abortions, infertility, and lowered milk production in cattle and bison and is transmissible to humans as undulant fever. In people, the disease causes severe flu like symptoms that can last for months or years. Treatment in humans is not always successful. Moreover, treatment is not successful in animals (USDA APHIS, 2007).

The only known threat of transmitting brucellosis left in the nation is in bison and elk in the Greater Yellowstone Area. When the high population of bison in Yellowstone exhausts the Park's forage resources, and the bison then migrate out of the Park, the animals pose a serious threat of spreading the disease to the state's cattle and people. This concern has led to controversial management techniques for Yellowstone bison (MDL, n.d.).

Chronic Wasting Disease

Chronic wasting disease (CWD) is a prion disease that affects North American cervids, the known natural hosts being mule deer, white-tailed deer, elk, and moose. CWD was first identified as a fatal wasting syndrome in captive mule deer in Colorado in the late 1960s and in the wild in 1981. It was recognized as a spongiform encephalopathy in 1978. To date, no strong evidence of CWD transmission to humans has been reported. CWD can be highly transmissible within deer and elk populations. The mode of transmission is not fully understood, but evidence supports the possibility that the disease is spread through direct animal-to-animal contact or as a result of indirect exposure to prions in the environment (contaminated feed and water sources).

Specific studies have begun that focus on identifying human prion disease in a population that is at increased risk for exposure to potentially CWD-infected deer or elk meat. Because of the long time between exposure to CWD and the development of disease, many years of continued follow-up are required to be able to say what the risk, if any, of CWD is to humans (CDC, 2007).

Foot-and-Mouth Disease

Foot-and-mouth disease (FMD) is a severe, highly communicable viral disease of cattle and swine. It also affects sheep, goats, deer and other cloven-hoofed ruminants. FMD does not spread to humans or horses. FMD is characterized by fever and blister-like lesions followed by erosions on the tongue and lips, in the mouth, on the teats, and between the hooves. Many affected animals recover, but the disease leaves them debilitated with lameness, poor performance, and reduced milk production. FMD viruses can be spread by animals, people, or materials that bring the virus into physical contact with susceptible animals (Montana Department of Livestock, 2004).

The virus is extremely contagious and spreads rapidly unless it is contained. This usually requires quarantining infected farms, followed by slaughtering and burning all susceptible animals. Because the virus is spread so easily, countries with the disease are banned from exporting animals and their products, creating further economic hardship.

Mad Cow (BSE) Disease

Bovine Spongiform Encephalopathy (BSE) is the scientific term for a disease which affects the brains of cattle. Soon after BSE was first discovered in the United Kingdom, it became more commonly known as "mad cow disease". Unlike most livestock diseases, BSE is not caused by a bacterial or viral infection, but rather is the result of infectious prions. These are unique proteins that may bond with a cow's brain cells, altering their composition and ultimately leading to the animal's death. Mad cow disease is believed to be transferred to cattle when they eat infectious proteins. A disease similar to BSE called Creutzfeldt-Jacob Disease (CJD) is found in people. A variant form of CJD (vCJD) is believed to be caused by eating contaminated beef products from BSE-affected cattle (Mad Cow Facts, 2007).

Plant Diseases

Montana ranks 3rd nationally in all wheat production, 3rd in barley production, 8th in alfalfa hay production, and 6th in sugar beet production (USDA National Agriculture Statistics Service, 2006). These crops represent the major commodities because of their impact on Montana's and the nation's economy and therefore, have special needs for pest management. Many pests are sporadic in their occurrence cycling with environmental conditions such as dry or wet cycles. However, major insect pests such as alfalfa weevil, wheat stem sawfly, wireworms, cutworm species, grasshoppers and cereal leaf beetle are likely to attain pest status in the state each year.

The security of the state's crop production is of paramount importance. Not only will an incident affecting crop production impact individual producers, it could also adversely impact food production and processing, which is an extremely important part of the state's economy. Newly introduced or detected diseases pose an especially serious threat.

A secure agricultural system requires rapid detection of outbreaks, accurate diagnoses of problems, and early response to minimize impact. The USDA Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine Program coordinates pest detection activities nationwide. Plant pest detection coordination is handled locally by the Montana Department of Agriculture and Montana State University (MSU) Extension Service.

3.3.1.2 History and Occurrence of Communicable Disease in Montana

Public health emergencies that have affected Montana include vector-borne disease, such as West Nile Virus, food-borne illness like *E.coli*, and vaccine-resistant illness such as virulent strains of influenza. There are added occurrences of agricultural and livestock disease that have had some impact on the State's economy.

3.3.1.2.1 Human Diseases

The following section provides a history of some of the communicable diseases that have affected the State of Montana. **Table 3.3.1-1** presents a summary of reported cases of many of the vector-borne and food-borne illness that have occurred from 1999 to 2005.

Table 3.3.1-1 Montana Communicable Disease Summary: Reported Cases 1999-2005					
Year	E Coli	Salmonella	Shigella	Hantavirus	West Nile
1999	41	86	10	2	-
2000	48	97	8	4	-
2001	32	81	9	2	0
2002	38	91	4	0	1
2003	28	112	2	5	228
2004	32	188	4	2	6
2005	23	149	5	1	26
TOTAL	242	804	42	16	261

Source: MDPHHS, 2006b

E. coli

An *E.coli* outbreak associated with the Jack in the Box restaurants was in the national spotlight in January 1993 when more than 600 people got sick from eating undercooked hamburgers contaminated with *E.coli*. Most of the victims were children living in Washington state; four of them died. Jack in the Box was initially criticized for its handling of the crisis, losing credibility and stock market value immediately after the outbreak. But observers say the chain quickly recovered by instituting industry standard-setting food handling and cooking techniques (National Law Journal, 1997).

In September 2006, an outbreak of *E.coli* linked to the consumption of bagged spinach resulted in 205 confirmed illnesses and three deaths. Initially it was thought the bacteria originated at the California processing and packaging plant where the contaminated products had been processed. However, other environmental risk factors for *E.coli* at or near the field included the presence of wild pigs, the proximity of irrigation wells used to

grow produce for ready-to-eat packaging, and surface waterways exposed to feces from cattle and wildlife. Because of the many ways *E.coli* can be transferred -- including animals, humans, and water -- the precise means by which the bacteria spread to the spinach remains unknown (FDA, 2007b).

Over 240 cases of *E.coli* were reported in Montana from 1999 to 2005 (**Table 3.3.1-1**). None of these cases resulted in death.

Hantavirus

In this country, hantavirus was first recognized during the spring of 1993 after a cluster of previously healthy individuals who lived in the Four Corners area of New Mexico acquired an acute cardiopulmonary illness. As of July, 2003, there have been 340 confirmed cases of HPS in the United States. Of these, there have been 129 deaths, five in Montana (MSU Ag Extension, 2004). **Table 3.3.1-1** indicates there were 16 reported hantavirus cases in Montana between 1999 and 2005.

HIV and AIDS

HIV was first identified in the United States in 1981. It took several years for scientists to develop a test for the virus, to understand how HIV was transmitted between humans, and to determine what people could do to protect themselves. During the early 1980s, as many as 150,000 people became infected with HIV each year. By the early 1990s, this rate had dropped to about 40,000 each year, where it remains today (CDC, 2007). Since 2001, there are roughly 350 AIDS cases reported annually in Montana.

Norovirus

Norovirus has received attention in Montana in recent years. The Montana Department of Public Health and Human Services (DPHHS) issued a Norovirus Health Alert on May 3, 2006 which advised the public that eight different norovirus outbreaks had sickening approximately 500 residents and staff in long-term care facilities and/or assisted living centers in five separate Montana communities (DPHHS, 2006).

From July 1997 to June 2000, 232 outbreaks of norovirus were reported to the Centers for Disease Control (CDC). Of these cases, 57 percent were foodborne, 16 percent were due to person-to-person spread, and 3 percent were waterborne. In 23 percent of the outbreaks, the cause of transmission was not determined. Common settings for outbreaks include restaurants and catered meals (36 percent), nursing homes (23 percent), schools (13 percent), and vacation settings or cruise ships (10 percent) (CDC, 2007).

Influenza and Pandemic Influenza

The influenza epidemic that swept the world in 1918 killed an estimated 50 million people. This deadly virus afflicted over 25 percent of the U.S. population and over 1/5th of the world's population. Within months, the flu had killed more people than any other illness in recorded history.

The "plague" emerged in two phases. In late spring of 1918, the first phase, known as the "three-day fever," appeared without warning. Few deaths were reported. Victims recovered after a few days. When the disease surfaced again that fall, it was far more severe. Scientists, doctors, and health officials could not identify this disease which was striking so fast and so viciously, eluding treatment and defying control. Some victims died within hours of their first symptoms. Others succumbed after a few days; their lungs filled with fluid and they suffocated to death (National Archives, 2007).

By the time that Montana officials made their first report to the U.S. Public Health Service on October 4, 1918, the pandemic was already sweeping across the state. By October 21, officials made a report, which was "very incomplete," still told of more than 3,500 cases of flu. On November 1st, Montana officials said that at least 11,500 people had been afflicted with the flu over the previous three weeks. The toll could have been higher, since officials admitted that their reports were incomplete. The final death toll in Montana from the 1918 influenza epidemic in Montana will never be known (Moritsugu, 2006).

Pandemics associated with substantial illness and death also occurred in 1957 and 1968. In the Asian influenza pandemic of 1957, in which H2N2 viruses appeared, influenza-associated deaths were estimated at greater than 2 million worldwide. The influenza pandemic of 1968 started in Hong Kong and was caused by an H3N2 virus. This pandemic was much less severe than previous pandemics, with estimated influenza-associated deaths of approximately 1 million (WHO, 2005 in CDC, 2007).

West Nile Virus

West Nile virus was first isolated in the West Nile District of Uganda in 1937. The ecology was characterized in Egypt in the 1950s. The virus became recognized as a cause of severe human meningitis or encephalitis (inflammation of the spinal cord *and* brain) in elderly patients during an outbreak in Israel in 1957. Equine disease was first noted in Egypt and France in the early 1960s. WNV first appeared in North America in 1999, with encephalitis reported in humans and horses. WNV was a significant cause of human illness in the United States in 2002 and 2003 (CDC, 2007).

Montana victims of West Nile Virus have ranged in age from 3 to 91; however, fatalities have involved individuals aged 65 to 84 (DPHHS, 2006). Most counties in eastern Montana have reported human cases of WNV while western Montana has seen primarily equine cases (**Figure 3.3.1-1**). Between 2002 and 2005, there were 261 reported cases of WNV in Montana and four deaths (**Table 3.3.1-2**).

Figure 3.3.1-1 West Nile Virus in Montana 2002 to 2005
Source: MDPHHS, 2006a

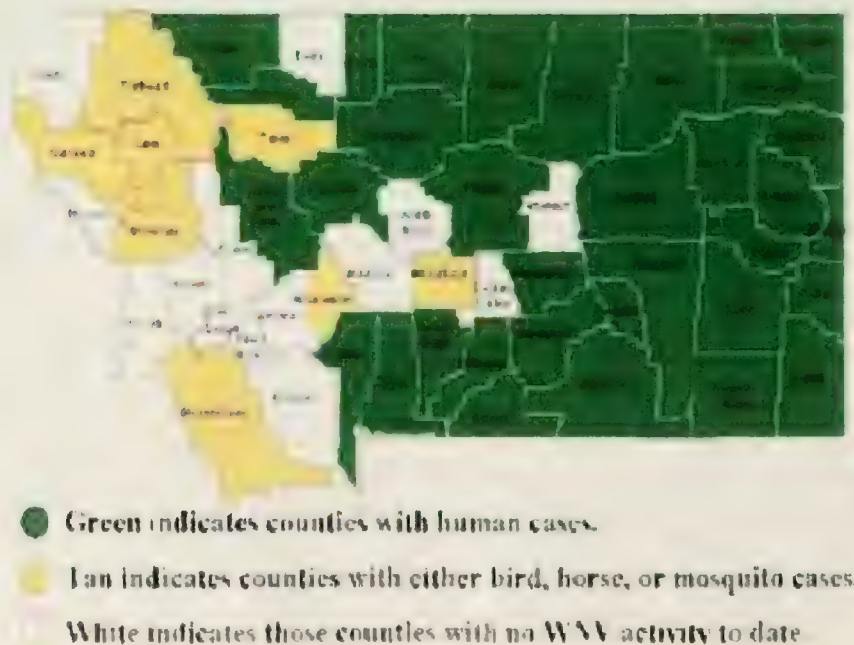


Table 3.3.1-2 Montana Human West Nile Virus Cases: 2002-2005					
Human Cases/Yr	2002	2003	2004	2005	Total
Non-Hospitalizations	0	142	3	18	163
Hospitalizations	0	86	3	7	96
Unknown	1	0	0	1	2
Total Cases	1	228	6	26	261
Deaths	0	4	0	0	4

Source: MDPHHS, 2006 <http://www.dphhs.mt.gov/westnile/2006wnvbrochure.pdf>

Salmonella

Every year, approximately 40,000 cases of salmonellosis are reported in the United States. Because many milder cases are not diagnosed or reported, the actual number of infections may be 30 or more times greater. It is estimated that approximately 600 persons die each year with acute salmonellosis (CDC, 2007). **Table 3.3.1-1** indicates over 800 cases of Salmonella were reported in Montana from 2002 to 2005.

Shigella

Over 40 cases of Shigella were reported in Montana from 1999 to 2005 (**Table 3.3.1-1**). None of these cases resulted in death. In late 2006, a Shigella outbreak occurred in Fremont County Wyoming sickening at least 35 people.

3.3.1.2.2 Animal and Plant Diseases

Anthrax

Anthrax occurs naturally in the United States, predominantly infecting cattle. Human cases are almost without exception cutaneous infections associated with contact with infected animals. A suspected gastro-intestinal case occurred in 2000. The last fatal case of inhalation anthrax occurred in 1976, when a home craftsman died after working with yarn imported from Pakistan. A case of cutaneous anthrax was reported during the summer of 2001 in Texas, and a second case was suspected (Federation of American Scientists, 2001).

According to the Montana State Veterinarian, in 2003 anthrax caused the death of 37 cows from a single herd on tribal land northwest of Culbertson in Roosevelt County. All the remaining animals from the 250-cow herd were removed from the affected pasture and treated with antibiotics and vaccinated and a quarantine was placed on the affected premises for 40 days. Prior to this incident, the last confirmed cases of anthrax in Montana were diagnosed in 1999 in unrelated incidents, one in May in Yellowstone County and one in August in McCone County. Prior to 1999, the last case of naturally occurring anthrax in Montana was in 1985 (Montana News Association, 2003-2004).

The organism naturally occurs in the soil in many parts of Montana, as well as other states. North Dakota and South Dakota have had multiple cases of anthrax during the 2003 season when the last outbreak occurred in Montana cattle.

An anthrax outbreak among cattle in typically poses little threat to humans. Only individuals who came into direct contact with the carcass or bodily fluids of infected cattle need to be monitored for potential exposure to the disease.

Brucellosis

Brucellosis has caused devastating losses to farmers in the U.S. over the last century. It has cost the federal government, the states, and the livestock industry billions of dollars in direct losses and the cost of efforts to eliminate the disease.

Brucellosis was detected in Montana cattle on May 18, 2007 threatening the state's brucellosis-free status. While brucellosis poses only a minute risk to human health, the economic costs could severely curtail Montana's premiere beef cattle industry. Under federal rules, once brucellosis is detected, an exhaustive investigation that confirms no other cases of diseased livestock must be completed within 60 days for the state to retain its disease-free status (MDL, 2007a).

Montana Department of Public Health and Human Services (DPPHS) statistics indicate that between 1960 and 1985, when Montana acquired its brucellosis-free status, there were 28 cases of human undulant fever diagnosed in Montana. In the past 20 years since becoming brucellosis-free, only four Montanans have contracted the disease.

Montana must remain clean from brucellosis for two years after discovering the first positive herd for the state to retain its brucellosis-free status. If Montana were to lose its brucellosis-free status, all 18-month old and older reproductive cattle shipped out of the state would be tested for brucellosis within 30 days of transport, costing Montana producers and estimated \$5 million to \$15 million annually (MDL, 2007a).

Foot-and-Mouth Disease

The United States has been free of foot-and-mouth disease since 1929, and Montana Department of Livestock records dating back to 1907 do not show any cases of FMD (MDL, 2007c).

In August, 2005, a highly contagious disease similar to foot-and-mouth disease was found in both Montana and Wyoming. The first Montana cases of vesicular stomatitis, or VS, were confirmed in a horse in the Laurel area and in a cow in southwestern Wyoming. Texas reported the first case of VS in the U.S. in May, 2005. Other affected states were Arizona, Colorado, New Mexico and Colorado (Billings Gazette, 2005).

Mad Cow (BSE) Disease

The only known case of BSE disease in the United States was identified in December 2003 when the USDA announced a presumptive diagnosis in an adult Holstein cow from Washington State. Preliminary trace-back based on an ear-tag identification number suggested that the BSE-infected cow was imported into the U.S. from Canada in August 2001. This information was later confirmed by genetic testing.

On January 2 and 11, 2005, the Canadian Food Inspection Agency announced the confirmation of BSE in two cows from the province of Alberta. One of the cows was born in October 1996 and the other was born in March 1998, after the Canadian government instituted a ruminant feed ban in 1997. According to the Canadian Food Inspection Agency, no part of these animals has entered the human food supply.

To date, there have been 155 confirmed and probable cases of variant-Creutzfeldt-Jacob Disease (vCJD) worldwide among the hundreds of thousands of people that may have consumed BSE-contaminated beef products. The one reported case of vCJD in the United States was in a young woman who contracted the disease while residing in the UK and developed symptoms after moving to the U.S. (FDA, 2007a).

Plant Diseases

The most dramatic and economically serious recent example of an invasive species affecting a U.S. crop is Karnal bunt of wheat which was detected for the first time in the U.S. in March 1996. Detection of Karnal bunt caused major disruptions in U.S. grain trade with 21 countries and had economic ramifications. Detection of Karnal bunt in a Montana seed facility occurred before the seed had been distributed and thus prevented the introduction of this pathogen into Montana production fields (Western Coordinating Committee, 2000). This entailed wrapping a Montana grain elevator in plastic and fumigation.

3.3.1.3 Declared Disasters from Communicable Disease

No state or federal disaster declarations have been made as the result of a communicable disease outbreak.

3.3.1.4 Vulnerability to Communicable Disease

3.3.1.4.1 Statewide Vulnerability to Communicable Disease

The entire population of the State of Montana is at risk for contracting disease. The urban population centers are more vulnerable to rapidly spreading and highly contagious diseases than more rural parts of the state. The number of fatalities would depend on the mortality rate and the percentage of the population affected. The ability to control the spread of disease would be dependent on the contagiousness of the disease, movement of the population, and the warning time involved (Gallatin County Hazard Mitigation Plan, 2006).

Experts are not able to predict when the next influenza pandemic will occur, or which influenza virus subtype will cause it. Modeling based on the 1968 pandemic estimates 2 million to 7.4 million deaths worldwide. In the United States alone, the next influenza pandemic could cause 89,000 to 207,000 deaths and 314,000 to 734,000 hospitalizations, as well as tens of millions of outpatient visits and additional illnesses, in the absence of effective interventions. The economic costs due to deaths, illness, and hospitalizations in the United States, excluding disruptions to commerce and society, would be \$71.3 to \$166.5 billion (Meltzer and others, 1999 in CDC, 2007). The potential impact on the Montana economy has not been quantified.

Foreign plant and animal pests and diseases may be introduced into the United States through banned agricultural products and unchecked foreign goods. These pests and diseases could devastate America's crops, livestock and environment. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) estimates that introduced plant pests result in an annual \$41 billion loss to American agriculture and cost taxpayers millions more dollars in control expenditures (USDA APHIS, 2005b). Montana's agricultural industry is also vulnerable to economic loss due to plant and animal disease.

3.3.1.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.1-2 presents the Communicable Disease Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Figure 3.3.1-2 Hazard Risk Map: Communicable Disease

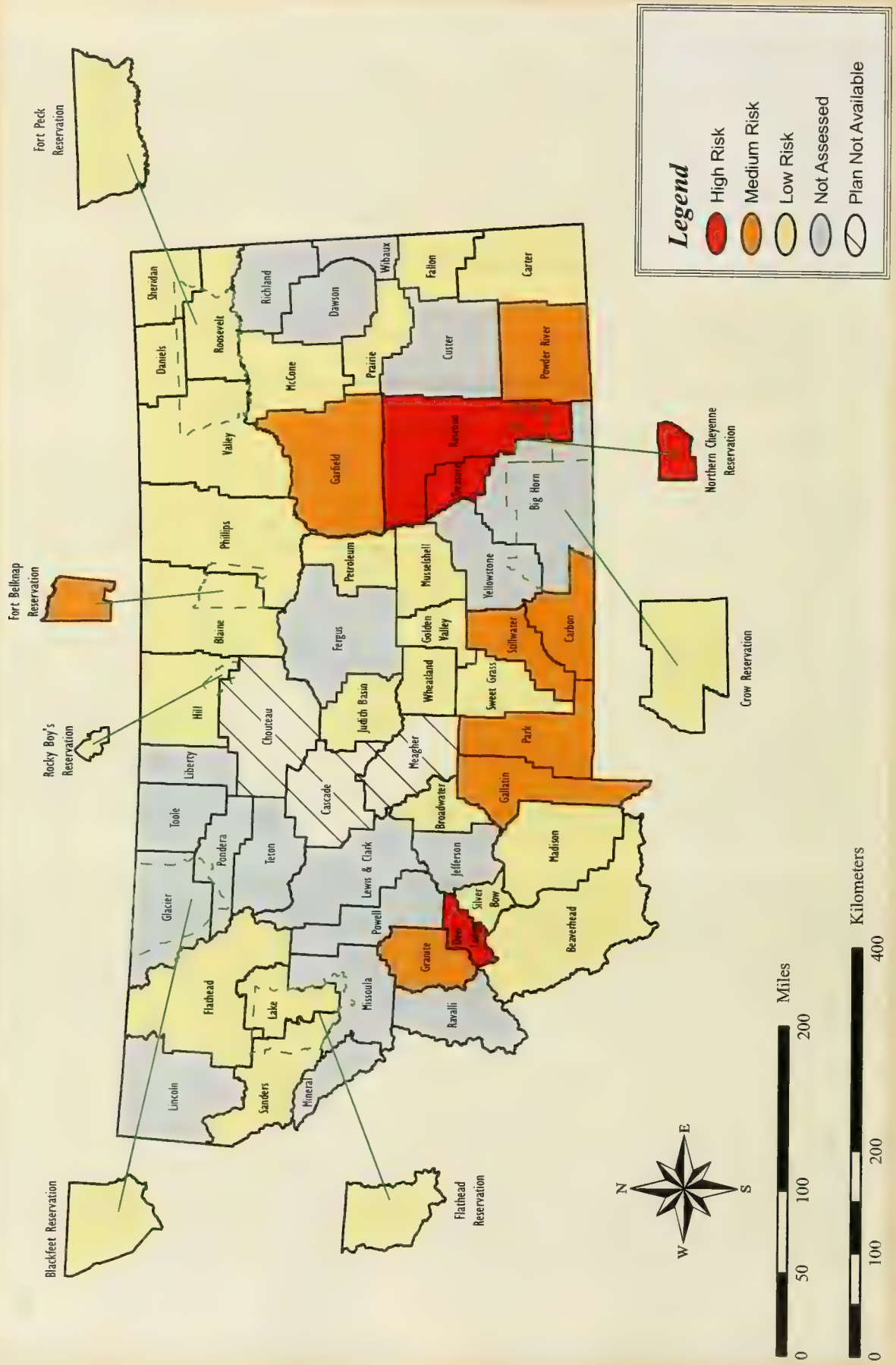


Table 3.3.1-3 presents a summary of potential loss estimates from communicable disease as calculated in the Local PDM Plans. Loss from communicable disease is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar figure or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.1-3** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Table 3.3.1-3 Potential Losses from Local Plans: Communicable Disease

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Low	High	High	1
1	Flathead County	Low	Moderate	Moderate	8
1	Flathead Reservation	NA	NA	NA	
1	Granite County	Low	High	High	1
1	Lake County	NA	NA	NA	
1	Lincoln County	NA	NA	NA	
1	Mineral County	NA	NA	NA	
1	Missoula County	NA	NA	NA	
1	Powell County	NA	NA	NA	
1	Ravalli County	NA	NA	NA	
1	Sanders County	NA	NA	NA	
1	Silver Bow County	Low	Moderate	Moderate	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	NA	NA	NA	
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	NA	NA	NA	
2	Liberty County	NA	NA	NA	
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	NA	NA	NA	
3	Beaverhead County	\$0	2,779	NA	5
3	Broadwater County	Low	Moderate	High	1
3	Gallatin County	Low	High	High	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Low	High	High	1

Table 3.3.1-3 Potential Losses from Local Plans: Communicable Disease

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
3	Sweet Grass County	NA	NA	NA	
4	Carter County	Low	Low	Low	12
4	Custer County	NA	NA	NA	
4	Dawson County	NA	NA	NA	
4	Fallon County	NA	Low	Low	8
4	Garfield County	NA	448	\$25 million	1
4	McCone County	NA	Moderate	Moderate	3
4	Powder River County	Low-Moderate	650	Millions	1
4	Prairie County	NA	NA	NA	
4	Richland County	NA	NA	NA	
4	Wibaux County	NA	NA	NA	
5	Big Horn County	NA	NA	NA	
5	Carbon County	NA	NA	\$111,000	8
5	Crow Reservation	NA	High	NA	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	NA	Moderate	NA	3
5	Rosebud County	Moderate	High	High	1
5	Stillwater County	NA	NA	\$83,100	8
5	Treasure County	Low	High	High	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	NA	NA	NA	
6	Fergus County	NA	NA	NA	
6	Fort Peck Reservation	NA	NA	NA	
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	NA	NA	NA	
6	Roosevelt County	NA	NA	NA	
6	Sheridan County	NA	NA	NA	
6	Valley County	NA	NA	NA	

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan.

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number reference in Section 7.14 for a description of the methods used to calculate potential building, societal and economic loss.

3.3.1.4.3 Vulnerability of State Property

In general, critical facilities are not structurally threatened by communicable disease; however, their accessibility and function can be lost. Contamination of a critical facility could render the facility non-functional until decontamination or the threat has passed. For this reason, all critical facilities are assumed to be at risk from communicable disease. As with any human biological event, the hospitals and health service providers would most likely discover a threat and possibly become the first contaminated (Gallatin County Hazard Mitigation Plan, 2006). Public water systems are also potentially at risk to communicable diseases.

3.3.1.5 Impact of Future Development

Future development would not be directly impacted by communicable disease, but any additional residents would be at risk for disease. Future development would not impact the communicable disease hazard within the agricultural community.

3.3.1.6 Communicable Disease Data Limitations

Disease is a difficult hazard for which to provide specific vulnerabilities. For a disease to have a major impact, it first has to enter the community and then spread. That starting point, how the disease progresses, and preventive actions taken will determine the eventual outcome (Gallatin County Hazard Mitigation Plan, 2006). The data and analysis are limited by these outside factors.

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Shigella: <http://www.cdc.gov/ncidod/dpd/healthywater/factsheets/shigella.htm>

West Nile Virus: http://www.cdc.gov/ncidod/dvbid/westnile/wnv_factsheet.htm;

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3.3.2 Earthquake

An **earthquake** is ground shaking and radiated seismic energy caused most commonly by a sudden slip on a fault, volcanic or magmatic activity, or other sudden stress changes in the earth. An earthquake of magnitude 8 or larger on the Richter Scale is termed a great earthquake. Fortunately, Montana has not experienced a great earthquake in recorded history. A great earthquake is not likely in Montana but a major earthquake (M 7.0-7.9) occurred near Hebgen Lake in 1959 and dozens of active faults have generated M 6.5-7.5 during recent geologic time.

3.3.2.1 Background

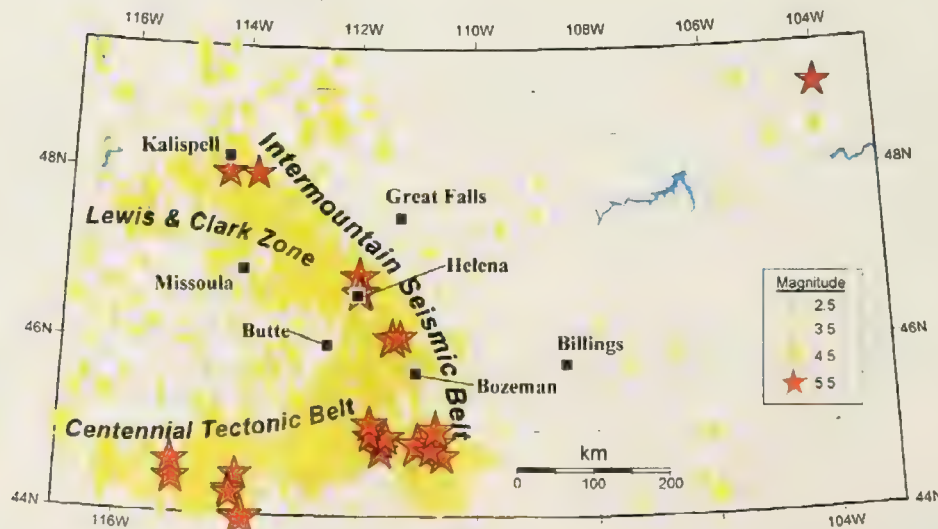
- Magnitude and intensity are used to describe seismic activity from earthquakes.
- Magnitude is a measure of the total energy released. Each earthquake has one magnitude, usually measured on the Richter Scale
- Intensity is used to describe the effects of the earthquake at a particular place. Intensity differs throughout the area and is given a value on the Modified Mercalli Scale.
- Seismic events may lead to landslides, uneven ground settling, flooding, and damage to homes, dams, levees, buildings, power and telephone lines, roads, tunnels, and railways. Broken natural gas lines may cause fires.
- Scientists continue to study faults in Montana to determine future earthquake potential. Faults are cracks in the earth's crust along which movement occurs.
- Thousands of faults have been mapped in Montana, but scientists think only about 95 of these have been active in the past 1.6 million years (the Quaternary Period).
- Although it has been over four decades since the last destructive earthquake in Montana, small earthquakes are common in the region, occurring at an average rate of 7-10 earthquakes per day.
- The largest earthquake in Montana, the 1959 Hebgen Lake event, caused more than \$11 million in damage.
- The second most-damaging earthquakes were the October 1935 Helena earthquakes, which caused more than \$4 million in damage.

Sources: FEMA 2004e; USGS, 2003a; Stickney and others, 2000; NISEE, 1998

A belt of seismicity known as the Intermountain Seismic Belt extends through western Montana, from the Flathead Lake region in the northwest corner of the state to the Yellowstone National Park region (**Figure 3.3.2-1**).

Figure 3.3.2-1 Intermountain Seismic Belt

Source: MBMG, 2004.



3.3.2.2 History of Earthquakes in Montana

Montana is one of the most seismically-active states in the United States. Since 1925, the state has experienced five shocks that reached intensity VIII or greater (Modified Mercalli Scale). During the same interval, hundreds of less severe tremors were felt within the state. Montana's earthquake activity is concentrated mostly in the mountainous western third of the state, which lies within the Intermountain Seismic Belt that also includes southeastern Montana, western Wyoming, and central Utah (**Figure 3.3.2-1**).

The first confirmed earthquake in Montana was reported in Helena in 1869. The strength of this quake caused houses to shake, overturning furniture and breaking dishes.

Table 3.3.2-1 shows the historic earthquakes of Montana and surrounding regions with magnitude of 5.5 or greater since 1900. Although one significant earthquake occurred in eastern Montana in 1909, the majority have occurred along the Intermountain Seismic Belt and Centennial Tectonic Belt in western Montana. **Table 3.3.2-2** shows deaths and major damages from two major Montana earthquake events.

Table 3.3.2-1 Historic Earthquakes of Montana and Surrounding Regions with Magnitudes of 5.5 or Greater Since 1900

Date	Magnitude	Approximate Location
05/16/09	5.5	Northeast Montana
06/28/25	6.6	Clarkston Valley
02/16/29	5.6	Clarkston Valley
10/12/35	5.9	Helena
10/19/35	6.3	Helena
10/31/35	6.0	Helena
07/12/44	6.1	Central Idaho
02/14/45	6.0	Central Idaho
09/23/45	5.5	Flathead Valley
11/23/47	6.1	Virginia City
04/01/52	5.7	Swan Range
08/18/59	7.5	Hebgen Lake
08/18/59	6.5	Hebgen Lake
08/18/59	6.0	Hebgen Lake
08/18/59	5.6	Hebgen Lake
08/18/59	6.3	Hebgen Lake
08/19/59	6.0	Hebgen Lake
10/21/64	5.6	Hebgen Lake
06/30/75	5.9	Yellowstone Park
12/08/76	5.5	Yellowstone Park
10/28/83	7.3	Challis, ID
10/29/83	5.5	Challis, ID
10/29/83	5.5	Challis, ID
08/22/84	5.6	Challis, ID
07/26/05	5.6	Beaverhead County, MT

Source: Stickney and others, 2000

Table 3.3.2-2 Deaths and Damages from the Two Most Damaging Montana Earthquakes

Date	Locality	Deaths	Damages	Damages in 2007 \$
October 19, 1935	Helena, Montana	2	\$4 million	\$60.7 Million
October 31, 1935	Helena, Montana	2		
August 18, 1959	Hebgen Lake, Montana	28	\$11 million	\$78.6 Million

Source: USGS, 2004a

3.3.2.2.1 Largest Earthquake in Montana: Hebgen Lake, August 18, 1959 Magnitude 7.5, Intensity X

The Hebgen Lake Earthquake of 1959 was the largest earthquake in Montana and the 14th largest earthquake in the contiguous United States in historic times (Stover and Coffman, 1993). This earthquake caused 28 fatalities and about \$11 million in damage to highways and timber. It was characterized by extensive fault scarps, subsidence and uplift, a massive landslide, and a seiche (large wave) in Hebgen Lake. A maximum intensity X or greater (Modified Mercalli Scale) was assigned to the epicentral area.

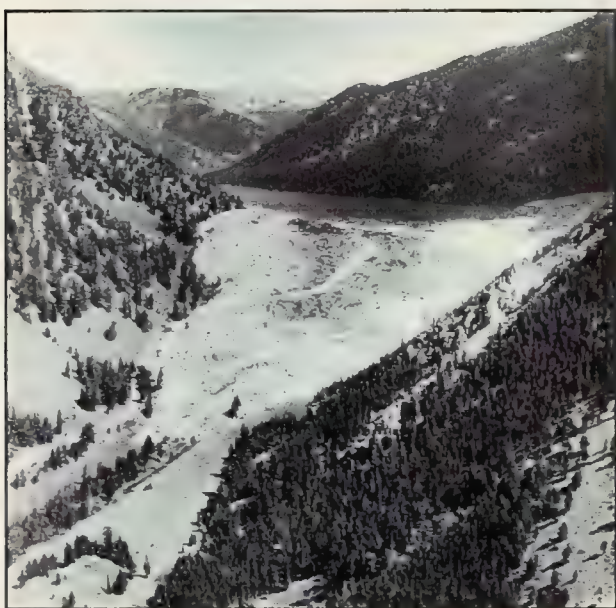


Photo 3.3.2-1
Aerial View of Madison Canyon Slide
with Earthquake Lake in the background. The Hebgen fault crosses the dark forested spur near the head of lake. Madison County, Montana. August 1959.
Source: USGS, 2004a

The most spectacular and disastrous effect of the earthquake was the huge landslide of rock, soil and trees that cascaded from the steep south wall of the Madison River Canyon. This slide formed a barrier that blocked the gorge and stopped the flow of the Madison River and, within a few weeks, created a lake almost 53 meters (174 feet) deep. The volume of material that blocked the Madison River below Hebgen Dam was estimated at 28 to 33 million cubic meters (988.8 to 1165.4 cubic feet). Most of the 28 deaths were caused by rockslides that covered the Rock Creek public campground on the Madison River, about 9.5 kilometers (5.9 miles) below Hebgen Dam.



Photo 3.3.2-2
Hebgen Earthquake, Red Canyon Fault Scarp (1959) where it cut through the Blarneystone Ranch. The house sits on the down-thrown block. The fault scarp here is 10 to 12 feet high. The roof of a small collapsed shed is visible on the up-thrown block. Gallatin County, Montana.
Source: USGS, 2004a

New fault scarps as high as 6 meters (19.7 feet) formed near Hebgen Lake during this earthquake. The major fault scarps formed along pre-existing normal faults northeast of Hebgen Lake. The earth-fill dam sustained significant cracks in its concrete core and spillway, but it continued to be an effective structure.

Many summer houses in the Hebgen Lake area were damaged; houses and cabins shifted off their foundations, chimneys fell, and pipelines broke. Most small-unit masonry structures and wooden buildings along the major fault scarps survived with little damage when subjected only to vibratory forces. Roadways were cracked and shifted extensively, and much timber was destroyed. Highway damage near Hebgen Lake was due to landslides slumping vertically and flowing laterally beneath pavements and bridges, which caused severe cracks and destruction. Three of the five reinforced bridges in the epicentral area also sustained significant damage.

High intensity earth movements were observed in the northwest section of Yellowstone National Park. Here, new geysers erupted, and massive slumping caused large cracks in the ground from which steam emitted. Many hot springs became muddy.

3.3.2.2.2 Helena Earthquakes – Up to Magnitude 6.3

Starting with a small tremor on October 3, the City of Helena, Montana suffered through a devastating series of several hundred earthquake shocks in the month of October, 1935, including three damaging earthquakes on October 12th, 18th, and the 31st. Although no surface ruptures occurred during this earthquake sequence, shaking from the earthquakes damaged more than half of Helena's buildings. The epicenters of the 1935 series of earthquakes is not precisely known, but were probably located about 6 km (3.7 miles) north of the city, possibly along the Prickly Pear fault zone (Qamar and Stickney, 1983). The following description of the earthquake is from the National Information Service for Earthquake Engineering (NISEE, 1998).

Previous to the cluster Helena earthquake tremors there had been little recorded seismic activity in the area of Helena. The earthquakes disproved a then-popular misconception that all seismic activity within the United States occurred solely in California and Alaska. Before October 1935, the spurious sense of immunity from natural disaster contributed to an atmosphere of uncontrolled construction in Helena. Earthquake hazard and earthquake-resistant design methods were disregarded. Older, antiquated construction in Helena behaved predictably during the tremors.



Photo 3.3.2-3

Bryant Elementary School in Helena, Montana suffered increasing damage in the series of 1935 earthquakes which began October 12th. Until reconstruction was completed, its 276 students attended school in the basement of Central school.

Source: Utah NEHRP, 2004

Damage in Helena included collapsed chimneys, fallen parapets, gables, and end walls, shattered walls parallel to interior framing, with partial or total collapse of structures as the ultimate end. Most buildings with un-reinforced masonry-bearing walls were severely damaged within the month-long barrage of seismic activity. Likewise, industrial smoke stacks built almost entirely of brick fell down.

The inadequacies of existing structural design requirements became painfully obvious after a large earthquake. The October 18th earthquake brought serious damage to City Hall, as well as the area to the east of the mercantile district along Main Street. There, many chimneys fell down, brick dwellings were seriously damaged or partly collapsed, brick veneer was thrown off, and many commercial, school, and public buildings were greatly affected, some destroyed. The worst wreckage occurred in structures on the softer alluvial soil toward the valley, notably the new High School and the Bryant School.

The last large shock of October 31st caused the collapse of parts of buildings which previously had been seriously affected, but which remained standing, including the new High School and the Kessler Brewery. It also caused new damage in many structures not previously seriously affected. The failure of the high school is directly attributable to deficiencies in design. The skeleton frame was designed for vertical (not horizontal) loads and reinforced for such loads only. Walls could offer no stability to the frame. As a result, the walls broke up and shattered, and the frame was cracked or ruptured in many places.

3.3.2.2.3 Dillon Earthquake

On the evening of July 25, 2005 at 10:08 p.m. a magnitude 5.6 earthquake occurred in southwestern Montana 16 kilometers north of Dillon. The Intensity VI shaking at Dillon caused damage to some masonry structures, particularly older chimneys. A large chimney on Old Main Hall on The University of Montana-Western campus in Dillon sustained severe damage and was subsequently removed to prevent total collapse. Beaverhead County DES personnel estimated that that up to 60 percent of the older masonry chimneys in Dillon were damaged. An overpass above Interstate-15 located 6.5 km southwest of the epicenter experienced sheared anchor bolts and spalled concrete but remained in good service. Ground cracks formed in weakly consolidated deposits approximately 3 km southwest of the epicenter, apparently a result of strong ground shaking in weak soils but were unrelated to primary faulting. The Dillon earthquake occurred on a previously unknown fault that apparently lacks surface expression (Stickney, 2007).

3.3.2.3 Declared Disasters from Earthquakes

No declared disasters from the affects of earthquake damage have been made since 1974.

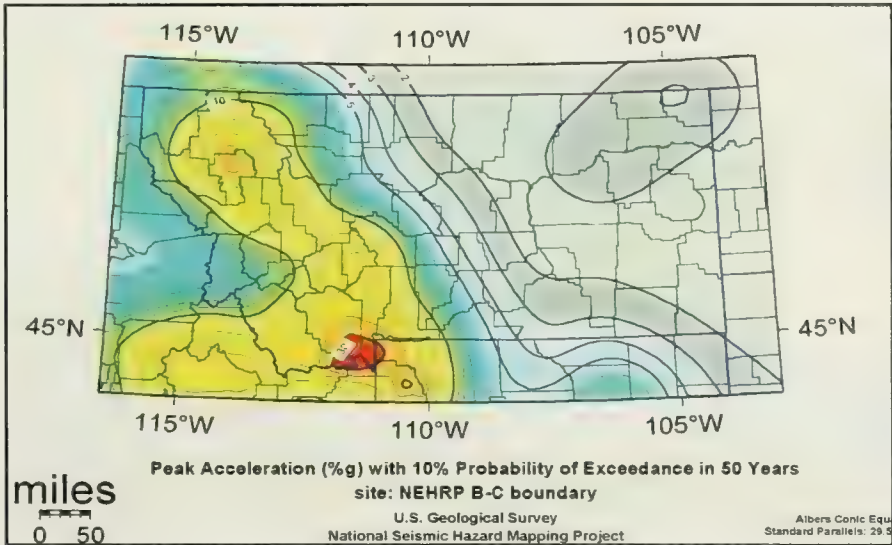
3.3.2.4 Vulnerability to Earthquakes

Earthquakes will undoubtedly continue to occur in Montana, however the precise time, location, and magnitude of future events cannot be predicted. As discussed above, earthquake hazard areas in Montana are concentrated in the western portion of the state, which is part of the Intermountain Seismic Belt (**Figure 3.3.2-1**). Numerous factors contribute to determining areas of vulnerability: historical earthquake occurrence, proximity to faults, soil characteristics, building construction, and population density, to mention a few.

3.3.2.4.1 Earthquake Hazard Areas

The U.S. Geological Survey (USGS) has generated earthquake hazard areas (indicated by peak acceleration values) for the continental United States. The peak acceleration values applicable to Montana are shown in **Figure 3.3.2-2**. The contour values show the earthquake ground motions with a common probability of being exceeded in 50 years. The ground motions considered at a given location are those from all future possible earthquake magnitudes at all possible distances from that location. On a given map, for a given probability of exceedance, PE, locations shaken more frequently, will have larger ground motions.

Figure 3.3.2-2 Peak Acceleration Values in Montana
Source: USGS, 2004a



Seasonal tourism increases exposure to seismic hazards in all areas, but the greatest exposure is in the Yellowstone National Park-Hebgen Lake region, where several million people visit annually. The fact that the majority of the 28 fatalities associated with the 1959 Hebgen Lake earthquake were out-of-state visitors confirms this point. In contrast, Billings and Great Falls, respectively the first and third largest cities in the state, have relatively low earthquake hazard ratings.

3.3.2.4.2 Earthquake Loss Estimation Models

Earthquake losses were estimated by using the HAZUS (beta v 28.b) Earthquake model developed by the Federal Emergency Management Agency (FEMA). Counties with a high earthquake recurrence rates were compared by evaluating the annualized loss estimate in the HAZUS model. The annualized loss estimate addresses two key components of seismic risk: the probability of ground motion within a given study area and the consequences of the ground motion (FEMA, 2001). The result of a FEMA (2001) HAZUS analysis indicated that estimated annualized losses for the State of Montana are \$15.6M, based on 1999 values.

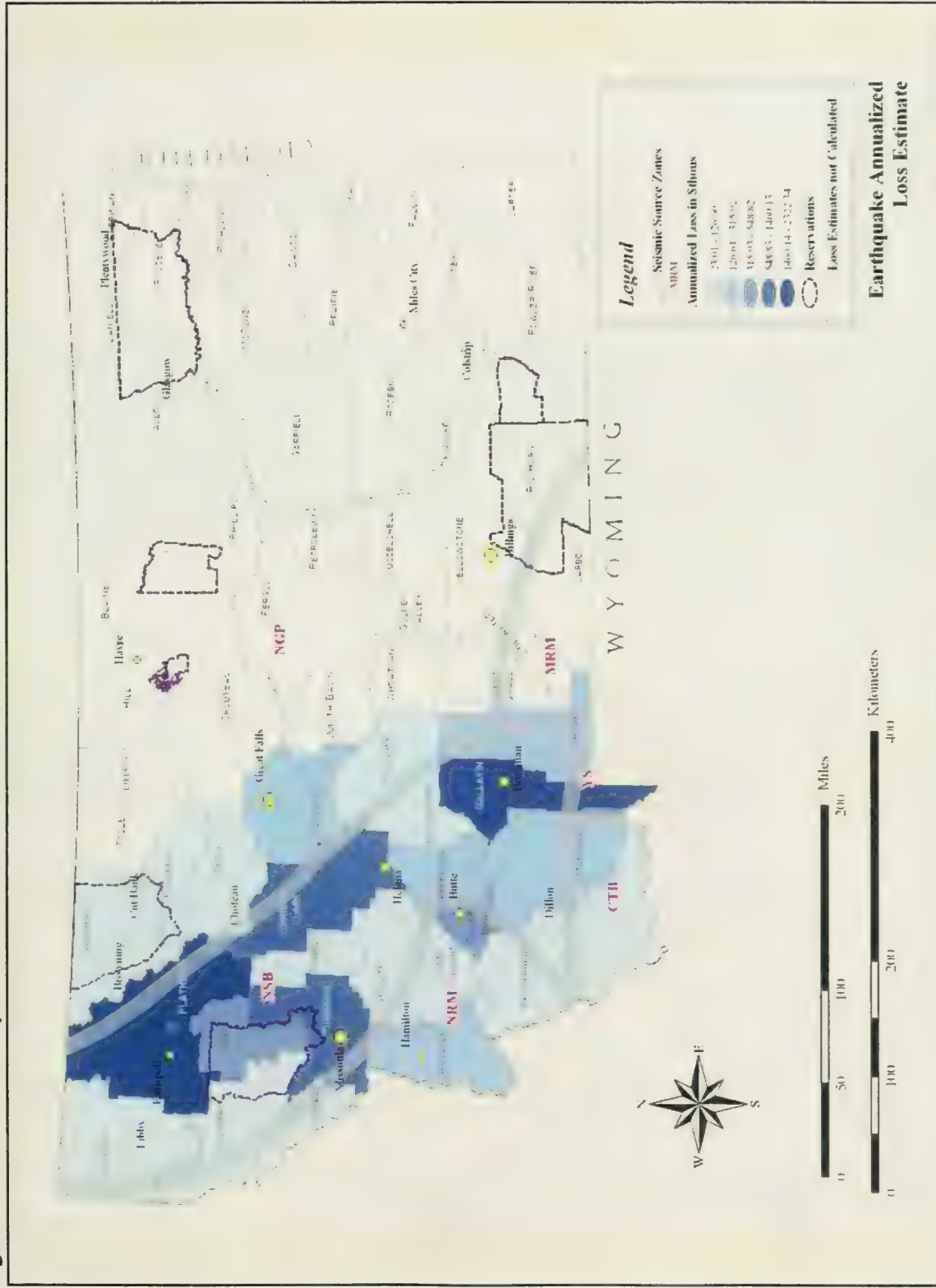
The HAZUS annualized loss estimate conducted for this Hazard Assessment uses default general building stock data in the model and estimates average losses per year by county. Counties with little history of earthquake activity were not included in the analysis. Ground motion was based on U.S. Geologic Survey probabilistic motion default parameters in the model (see **Figure 3.3.2-2**). The analysis used the ground motion demand computed at the centroid of each census tract. The results show county-wide estimated losses on an annual basis for general building stock. The analysis was not completed on other critical facilities or infrastructure due to a lack of digital data for these locations.

Table 3.3.2-3 and **Figure 3.3.2-3** show the results of the HAZUS analysis for the 10 counties with the highest potential for earthquake damage. The analysis shows that Gallatin County would have the highest losses, followed by Flathead, Missoula, and Lewis and Clark Counties. This result is somewhat surprising, as Missoula County is considered to have a relatively low seismic activity (Qamar and Stickney, 1983), and no earthquakes above 5.0 on the Richter Scale have ever been documented in Missoula County. Its proximity to the Intermountain Seismic Belt and concentrated population base may increase its vulnerability over the more frequent, less populated areas.

Table 3.3.2-3 Ten Counties with Highest Losses Using the HAZUS Earthquake Annualized Loss Function

County	Cost Structural Damage	Cost Non-Structural Damage	Cost Contents Damage	Inventory Loss	Wage/Income Related Loss	Loss Ratio	Total Annualized Loss
Gallatin	\$276,920	\$1,407,160	\$453,090	\$6,370	\$178,800	.0237	\$2,322,340
Flathead	\$217,200	\$1,098,980	\$419,230	\$6,340	\$116,690	.0200	\$1,858,440
Missoula	\$202,250	\$866,350	\$262,630	\$3,130	\$125,770	.0118	\$1,460,130
Lewis and Clark	\$163,300	\$730,480	\$231,330	\$2,420	\$84,390	.0171	\$1,211,910
Silver Bow	\$76,720	\$322,120	\$96,330	\$1,040	\$52,610	.0134	\$548,820
Lake	\$57,730	\$294,050	\$115,950	\$1,380	\$28,090	.0167	\$497,200
Ravalli	\$47,690	\$183,210	\$57,420	\$1,030	\$26,580	.0083	\$315,920
Cascade	\$46,160	\$164,590	\$48,070	\$510	\$38,610	.0029	\$297,930
Jefferson	\$31,560	\$144,540	\$46,030	\$210	\$9,960	.0085	\$232,300
Madison	\$27,480	\$141,540	\$42,870	\$650	\$12,930	.0231	\$225,460

Figure 3.3.2-3 Earthquake Annualized Loss Estimate



3.3.2.4.3 Earthquake Recurrence Intervals

Qamar and Stickney (1983) developed earthquake recurrence intervals for high-incidence seismic zones in the state based on historic earthquake information. Wong and others (2005) compiled a more complete historic earthquake catalog and used it to develop improved recurrence relations for five regional seismic source zones in Montana. The five regional source zones are: Northern Intermountain Seismic Belt, Centennial Tectonic Belt, Northern Rocky Mountains, Middle Rocky Mountains, and Northern Great Plains (**Figure 3.3.2-3**). These results suggest that a magnitude 6 or larger earthquake may strike the Northern Intermountain Seismic Belt once in a 23-year period. This seismic source zone includes the cities of Kalispell, Missoula, Helena, Bozeman, and Livingston, as well as the rapidly growing rural population and infrastructure surrounding those cities.

Table 3.3.2-4 Earthquake Recurrence Rates by Seismic Source Zone

Seismic Source Zone	M*5	M*6	M*7	# Quakes M ≥ 6
Northern Intermountain Seismic Belt	3.84	22.6	133.	1
Centennial Tectonic Belt	8.69	75.7	659.	1
Northern Rocky Mountains	36.6	420.	4821.	0
Middle Rocky Mountains	237.	1,754.	13,000.	0
Northern Great Plains	26.8	184.	1281.	2

* Predicted return time (in years) of earthquakes with magnitude M or greater.

Note: These values reflect recurrence times in the entire source zone.

Source: Wong and others, 2005

3.3.2.5 Review of Potential Losses in Local PDM Plans

Figure 3.3.2-4 presents the Earthquake Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.2-5 presents a summary of potential loss estimates due to earthquakes as calculated in the Local PDM Plans. Earthquake loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.2-5** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Figure 3.3.2-4 Hazard Risk Map: Earthquake

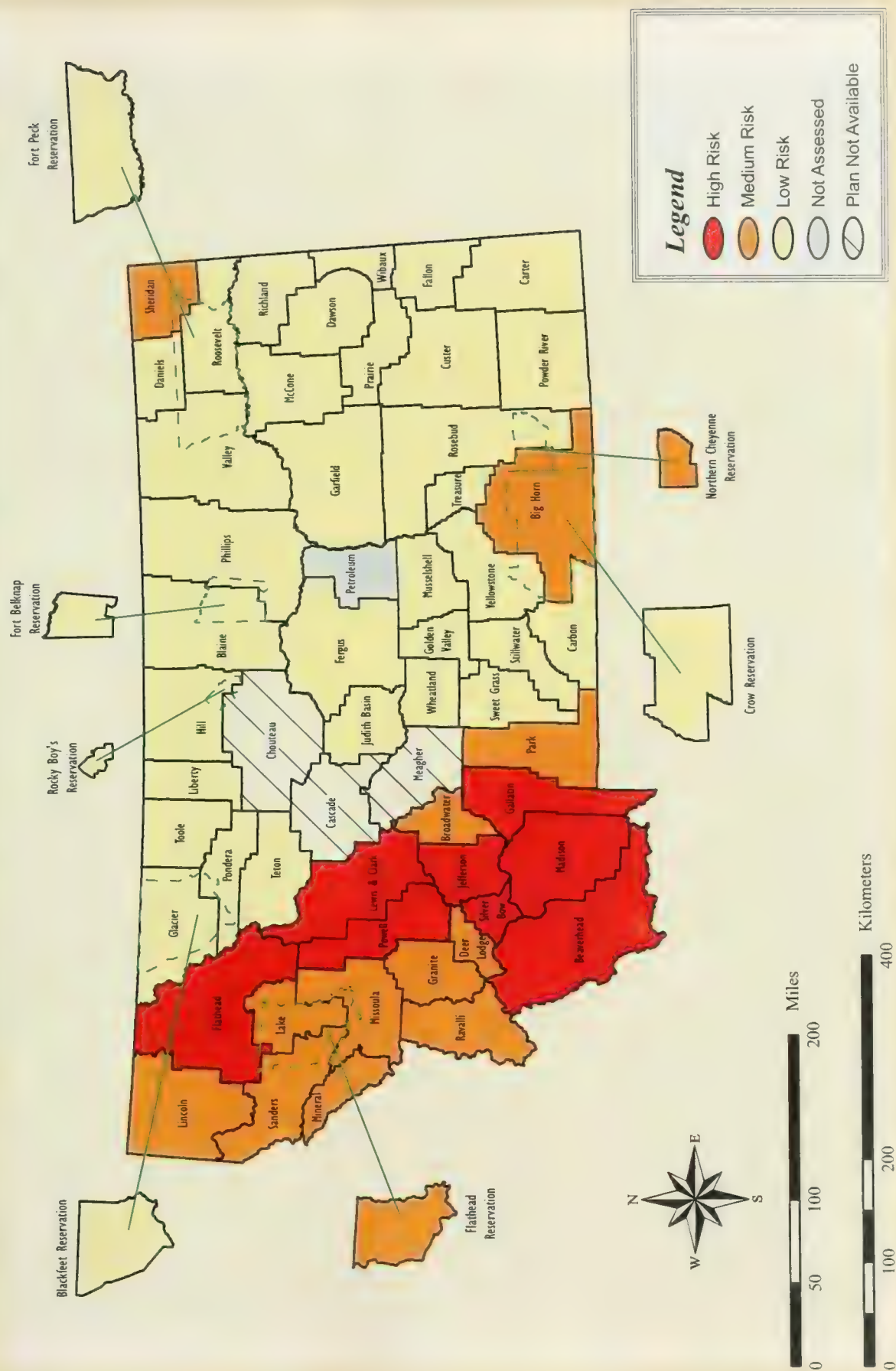


Table 3.3.2-5 Potential Losses from Local Plans: Earthquake

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	\$3,900,000	Moderate	High	1
1	Flathead County	\$300,000,000	10-70 K	Very High	8
1	Flathead Reservation	\$40,550,000	1586	NA	2
1	Granite County	\$5,300,000	Low	\$490,000	1
1	Lake County	\$40,550,000	1,586	NA	2
1	Lincoln County	2	1	NA	9
1	Mineral County	\$20-\$50,000	Low	NA	10
1	Missoula County	\$10-\$15 million	Low	NA	10
1	Powell County	Low	Low	NA	10
1	Ravalli County	\$1-\$2 million	Moderate	NA	10
1	Sanders County	NA	NA	NA	
1	Silver Bow County	\$300 million	100-300	High	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	NA	NA	NA	
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	NA	NA	NA	
2	Liberty County	Low	Low	Low	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	High	High	NA	11
3	Beaverhead County	\$20.2 Billion	520,000	NA	5
3	Broadwater County	\$50,000,000	50-100	High	1
3	Gallatin County	High	Moderate	High	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	\$400,000,000	262	NA	6
3	Madison County	\$4,747,416	NA	NA	7
3	Meagher County	U	U	U	
3	Park County	\$82,600,000	Moderate	High	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	Low	Low	Low	12
4	Custer County	NA	NA	NA	
4	Dawson County	NA	NA	NA	
4	Fallon County	NA	NA	NA	
4	Garfield County	\$130,000	Low	Low	1
4	McCone County	\$225,000	NA	NA	3
4	Powder River County	\$120,000	Low	Low	1
4	Prairie County	NA	NA	NA	
4	Richland County	\$225,000	NA	NA	3
4	Wibaux County	NA	NA	NA	
5	Big Horn County	\$225,000	NA	NA	3
5	Carbon County	NA	NA	NA	

Table 3.3.2-5 Potential Losses from Local Plans: Earthquake

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Crow Reservation	<\$225,000	Moderate	Moderate	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	<\$225,000	NA	NA	3
5	Rosebud County	Moderate	Low	Low	1
5	Stillwater County	NA	NA	NA	
5	Treasure County	Moderate	Low	Low	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	NA	NA	NA	
6	Fergus County	NA	8	8	4
6	Fort Peck Reservation	NA	NA	NA	
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	NA	NA	NA	
6	Roosevelt County	NA	NA	NA	
6	Sheridan County	NA	NA	NA	
6	Valley County	NA	NA	NA	

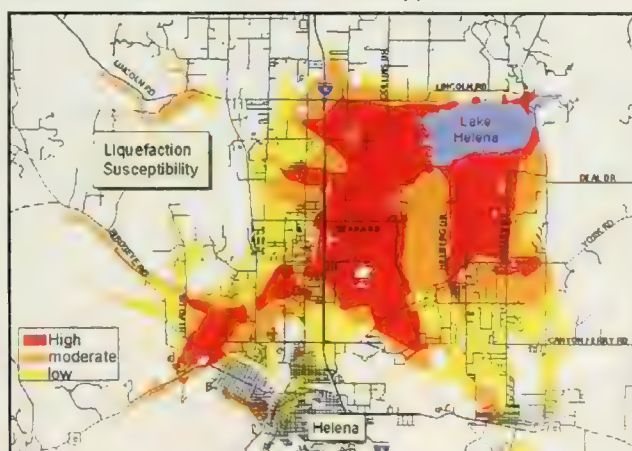
Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number reference in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

Helena is the only major city in Montana that is known to lie near an active fault capable of causing large earthquakes (Qamar and Stickney, 1983). Lewis and Clark County (2004) completed a HAZUS computer simulation of a 6.3 earthquake in Helena. The simulation revealed that property damage would be nearly \$1 billion for an earthquake of this magnitude. Fatalities and injuries would depend upon the time of day that the earthquake would occur, but may cause up to 12 deaths. The model results estimated government building damage would be minimal, but the default government building data built into the model is poor and likely underestimates the potential damage. The Capitol Complex is located in areas that have a very low potential of liquefaction susceptibility. A liquefaction susceptibility map for the Helena Valley is shown in **Figure 3.3.2-5**.

Figure 3.3.2-5 Liquefaction Susceptibility Map for the Helena Valley

Source: Lewis and Clark County, 2004



3.3.2.5.1 Vulnerability of State Property

An analysis of direct exposure of government buildings and infrastructure has not been completed. The default data of government buildings in the HAZUS earthquake prediction model is inadequate to assess structural, non-structural, and content losses. To effectively determine earthquake vulnerability for State property, data identifying locations of State buildings is necessary to determine the exposure and vulnerability. The current PCIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid).

Counties that are highly vulnerable to earthquake loss are those where the annualized earthquake loss ratio is greater than 0.01. **Table 3.3.2-6** shows the counties that meet that criteria and the total value of state buildings and contents that are exposed to earthquake loss.

Table 3.3.2-6 State-Owned Buildings in Counties Highly Vulnerable to Earthquake Loss

County	Annualized Loss Ratio	Building Value	Contents Value	Total Value	State Employee Count
Gallatin	.0237	\$628,106,416	\$313,624,692	\$941,731,108	407
Madison	.0231	\$12,293,758	\$562,960	\$12,856,718	63
Broadwater	.0214	\$13,193,938	\$9,366,472	\$22,560,410	130
Flathead	.0200	\$38,697,078	\$10,881,240	\$49,578,318	600
Jefferson	.0185	\$23,951,910	\$5,890,780	\$29,842,690	759
Lewis and Clark	.0171	\$326,386,470	\$185,642,670	\$512,029,140	4,946
Lake	.0167	\$10,924,908	\$3,994,159	\$14,919,067	120
Silver Bow	.0134	\$78,449,461	\$23,186,164	\$101,635,625	640
Powell	.0130	\$103,862,149	\$21,170,003	\$125,032,152	385
Beaverhead	.0124	\$49,682,696	\$14,379,360	\$64,062,056	122
Sanders	.0118	\$1,778,555	\$771,777	\$2,550,332	57
Missoula	.0118	\$683,963,987	\$193,808,935	\$877,772,922	673
Park	.0106	\$3,102,043	\$935,509	\$4,037,552	79
Meagher	.0100	\$673,734	\$52,431	\$726,165	17
TOTALS		\$1,975,067,103	\$784,267,152	\$2,759,334,255	8,998

Source: DOA, Risk Management and Tort Defense Division, 2007

3.3.2.6 Impact of Future Development

New construction in the Intermountain Seismic Belt is taking place in areas vulnerable to earthquake damage. The State Of Montana has adopted the International Building Code (IBC), 2006 edition and seismic provisions or requirements found in the IBC are what the state requires for commercial buildings built in Montana.

Seismic requirements are found throughout the code and are not condensed into a table or chart of requirements. Different building types, different occupancies and different uses all have varying degrees of seismic requirements and even different materials utilized in those different buildings and occupancies carry additional or different requirements i.e. wood construction of a police station would have different seismic requirements than a masonry built police station. A building with an occupant load of over 300 people would require additional seismic considerations than if the building held less than 300 (same use, same materials). The staff of architects and engineers at the Montana Department of Labor and

Industry, Bureau of Building and Measurement Standards perform plan reviews to ensure designers have included the seismic provisions and requirements found in the building code.

The IBC recognizes the differences in seismic activity by evaluating three main parameters; 1) amount of motion – this is a site specific value derived from software using a location’s zip code, 2) site class or soil type for a specific building site, and 3) the seismic use group which is the type of building use. These three parameters are analyzed to arrive at a “seismic design category” which the code then provides for specific requirements based on a project’s seismic design category label. For example a project located in an area where the ground motion has been determined to be high, the soil type at the site is determined to be such that not much dampening of that motion is likely to occur (not hard rock – silt or loose soil present) and the building is considered an “essential facility” such as a police station or hospital then the seismic design category will calculate out to be such that higher seismic requirements will be placed on that structure. You could have the same motion and the same soil type but have a building that is not essential (could be right across the street from the police station) and the seismic design category would be such that the requirements for seismic design will be lower.

The IBC does not cover single family residences. The State Of Montana has adopted the International Residential Code (IRC), 2006 edition for one and two family residences and townhouses. The State of Montana, Bureau of Building and Measurement Standards does not have jurisdiction over single family residences (they are exempt from the requirements of a building permit by law). Local jurisdictions (cities, counties and towns) can elect to become certified to take on enforcement of single family residences. Currently there are 42 certified jurisdictions including four counties (**Table 3.3.2-7**) that are certified to enforce building codes; however, they must adopt the same codes and operate under the same process as the State of Montana.

Table 3.3.2-7 Jurisdictions Certified to Enforce Building Codes within Intermountain Seismic Belt

County	Jurisdiction Enforcing Building Codes	Area of Enforcement
Broadwater	Townsend*	Within city limits
Deer Lodge	Anaconda/Deer Lodge County	Entire county
Flathead	Columbia Falls, Kalispell, Whitefish	Within city limits
Gallatin	Belgrade, Bozeman, Manhattan, West Yellowstone	Within city limits
Glacier	Cutbank	Within city limits
Lake	Polson*, Ronan	Within city limits
Lewis and Clark	East Helena, Helena	Within city limits
Lincoln	Libby, Troy	Within city limits
Missoula	Missoula	Within city limits
Missoula	Missoula County	County
Park	Livingston	Within city limits
Pondera	Conrad	Within city limits
Powell	Deer Lodge	Within city limits
Ravalli	Darby, Hamilton, Pinesdale*, Stevensville*	Within city limits
Silver Bow	Butte/Silver Bow County	Entire county

Notes: * indicates enforcing residential building codes only

Source: Montana DLI, 2007

Provided future development complies with State building codes, earthquake damage should be minimized. However, damage to new buildings and infrastructure will occur if earthquakes stronger than the "seismic design categories" in the building codes take place.

3.3.2.7 Earthquake Data Limitations

The default data of government buildings in the HAZUS earthquake prediction model is very inadequate. To effectively determine earthquake vulnerability of State property, data identifying locations of State buildings is necessary. The current Montana Department of Administration, Risk Management and Tort Defense Division PCIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid).

Fault mapping and specific local-level hazard mapping (such as liquefaction) is incomplete across the State. Many faults within the State are believed to be unmapped or not studied. Improvements to HAZUS data and continuing research in the areas of geology and earthquakes could significantly improve the vulnerability assessment.

3.3.2.8 Earthquake References

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3.3.3 Flooding

Floods are the result of a multitude of naturally-occurring and human-induced factors, but they all can be defined as the accumulation of too much water in too little time in a specific area. Types of floods that affect Montana include regional floods, flash floods, ice-jam floods, and dam-failure floods.

Floodplains are lands bordering rivers and streams that normally are dry but are covered with water during floods.

3.3.3.1 Background

- Factors that directly affect the amount of flood runoff include precipitation amount, intensity and distribution, the amount of soil moisture, seasonal variation in vegetation, snow depth and water-resistance of the surface due to urbanization.
- During the 20th century, floods were the number-one natural disaster in the United States in terms of the number of lives lost and property damage.
- Buildings or other structures placed in floodplains can be damaged by floods.
- Buildings and fill material can change the pattern of water flow and increase flooding and flood damage on adjacent property by blocking the flow of water and increasing the width, depth, or velocity of flood waters.
- Most homeowner insurance policies do not cover flood damage. Individuals and business owners can protect themselves from financial losses by purchasing flood insurance through FEMA's National Flood Insurance Program.

Sources: FEMA, 2003; USGS, 2000; NOAA, 2004

3.3.3.1.1 Regional and Flash Floods

Riverine floods result from precipitation over large areas and/or from snowmelt. This type of flood occurs in river systems whose tributaries may drain large geographic areas and include many independent river basins. The duration of riverine floods may vary from a few hours to many days.

Flash floods are local floods of great volume and short duration. In contrast to riverine flooding, this type of flood usually results from a torrential rain on a relatively small drainage area. The flood wave from flash floods can move downstream too fast to allow escape, resulting in many deaths. Most flood-related deaths are due to flash floods. Fifty percent of all flash flood fatalities are vehicle related. Two feet of water is all that is necessary to carry most vehicles downstream during a flood.

Flash floods can occur within several seconds to several hours, with little warning. They can be deadly because they produce rapid rises in water levels and have devastating flow velocities.

Factors contributing to flash flooding include: rainfall intensity, rainfall duration, surface conditions, and topography and slope of the receiving basin. Urban areas are susceptible to flash floods because a high percentage of the surface area is composed of impervious streets, roofs, and parking lots where runoff occurs very rapidly. Mountainous areas also are susceptible to flash floods, as steep topography may funnel runoff into a narrow canyon. (USGS, 2000; NOAA, 2004)

Of specific concern for many Montana areas are flash floods as a result of rain falling in wildfire burn areas. This type of flash flood can occur rapidly with less amounts of rainfall than is normally needed for flash flooding. Areas downslope of recently-burned areas are at an increased risk for flash flooding and associated mudslides or debris flows.

3.3.3.1.2 Ice Jam Floods

An **ice jam** is an accumulation of ice in a river that restricts water flow and may cause backwater that floods low-lying areas upstream from the jam. Downstream areas also can be flooded if the jam releases suddenly, sending a flash flood downstream.

Damages resulting from ice jams can affect roads, bridges, buildings, and homes, and can cost the affected community thousands to millions of dollars. In most instances, ice jams result in highly localized, yet serious damages, which makes it difficult to obtain the type of disaster assistance available for large-scale flooding events.

3.3.3.1.3 Dam Failure Floods

Dam failure floods are usually associated with intense rainfall or prolonged flood conditions, but can occur during an earthquake. Dam failure may be caused by faulty design, construction and operational inadequacies, intentional breaches, or a flood event larger than the design flood.

The greatest threat from dam failure is to people and property in areas immediately below the dam since flood discharges decrease as the flood wave moves downstream.

The degree and extent of damage depend on the size of the dam and the circumstances of failure. A small dam retaining water in a stock pond may break resulting in little more damage than the loss of the structure itself. In contrast, a similar dam break could result in the loss of irrigation water for a season, causing extreme financial hardship to many farmers. An even larger dam failure might bring about considerable loss of property, destruction of cropland, roads and utilities and even loss of life. Consequences of dam failure that are more far-reaching can include loss of income, disruption of services and environmental devastation (MDES, 1996).

3.3.3.2 History of Flooding in Montana

Flooding is a common occurrence in Montana. Spring run-off from winter snow annually threatens downstream communities. The following discussion summarizes historical flooding in each major Montana watershed.

3.3.3.2.1 Columbia River Basin Flooding

The Columbia River Basin has been subject to numerous significant flooding events over the years. Some of these events are described below:

- The June 1908 flood in Missoula County involved nearly every major stream and river. This event was the result of unseasonably warm temperatures and thirty-three (33) consecutive days of rain.
- In June 1964, approximately fifteen (15) inches of rain accumulated over a (30) thirty-hour period in the upper Flathead drainage. The resulting flood damaged more than 350 houses near Kalispell. The Army Corps of Engineers estimated that the damages in the Flathead Basin totaled \$25 million.

- In January 1974, the counties of Lincoln, Sanders, Flathead, Glacier, Mineral, Missoula and Deer Lodge were hit by flood waters which caused approximately \$16 million worth of damage to Forest Service roads, bridges, and facilities, and private property. These same counties suffered flood related losses again in June 1975, totaling nearly \$35 million (MDES, 1996)

3.3.3.2.2 Missouri River Basin Flooding

The most damaging flood in the Missouri River Basin occurred in June 1964. The principal rivers involved were the Dearborn, Sun, Teton and Marias. The event was initiated by eight to ten inches of rain over three days on a deeper-than-average snow pack. All counties situated along the Continental Divide were affected to some degree. However, the greatest damage was received by the City of Great Falls. This disaster resulted in the loss of 30 lives and an estimated \$55 million in damages, with the greatest damage in the city of Great Falls. The US Army Corps of Engineers has since completed a \$12 million flood control levee along the north bank of the Sun River near Great Falls, which protects over 500 homes and businesses.

In 1984, the combination of snowmelt and spring rains with frequent ice jams caused flooding on the Beaverhead River near Dillon. Crews successfully prevented major damage by channeling floodwaters through town on streets lined with sandbags and straw. The Clark Canyon Dam above Dillon and emergency dikes built on the river near town reduced potential damages.

Significant floods have occurred on the Milk River and its tributaries primarily as a result of rapid snowmelt over frozen soil. Heavy snow, the associated snowmelt, and ice jams caused the greatest flood on record for this river in April 1952. Over \$6 million (1952 dollars) in damages were recorded between Havre and the river's mouth below Nashua, causing significant economic impacts during this month long flood. Over 1,000 homes flooded and almost 3,000 people evacuated. Levees offered limited protection to the communities of Havre, Chinook, Malta, Saco, Glasgow, and Nashua. In September 1986, another significant flood impacted those along the Milk River from Havre to Nashua causing over \$3 million (1986 dollars) in FEMA reimbursed damages and one death, but by some sources over \$36 million in total damages (MDES, 1996; USACE, 1953; NWS, 2000; Dartmouth, 2003).

3.3.3.2.3 Yellowstone River Basin Flooding

The Yellowstone River system is one of the remaining large rivers in this country that does not have a major flood control dam, with the exception of the Yellowtail Dam on the Big Horn River. Large floods have affected the Glendive area near the end of the Yellowstone River, typically as a result of ice jams. Flooding in 1899 took twelve lives and destroyed a new bridge. In 1936, another ice jam isolated Glendive for 10 days. The Army Corps of Engineers built a levee in 1959, which protects a portion of the town, but does not provide adequate protection from even 50-year ice jam floods. Miles City, located at the junction of the Tongue and Yellowstone Rivers is one of the more flood prone towns in the state. Limited protection of the city is afforded by levees. Most recently, extensive flooding occurred in Park County near Livingston and Yellowstone County in 1996 and 1997 (MDES, 1996; NWS, 2001).

3.3.3.2.4 Flash Flooding in Montana

Flash flooding is common in some areas of the state during the summer storm season. The best examples of this type of flooding have occurred in the Billings area. Flooding of the tributaries of the Yellowstone River has resulted from intense summer thunderstorms, typically short in duration, which produce high peak flows. Major flooding of this type occurred in 1923 and 1937. Flash flooding is also common along drainages in Lincoln, Sanders, Flathead, Glacier, Mineral, Missoula and Deer Lodge Counties during the summer storm season. (MDES, 1996) Eastern Montana is also not immune to flash flooding. Heavy rainfall from thunderstorms can cause creeks and streams to rise rapidly. Tens of people were killed in Wibaux at the turn of the century when a train was swept off of its tracks, and portions of Montana Highway 2 are known to be prone to flash flooding.

3.3.3.2.5 Ice Jam Flooding in Montana

In Montana, 1,473 ice jam events have been recorded, the most of any lower 48 state. These ice jam events have been reported on 163 different streams and rivers and 199 different locations. Twenty-one percent of the ice jams have occurred in February with 45 percent occurring in March (NWS, 2007). Recorded ice jams do not always indicate flooding occurred with the ice jam, just the presence of an ice jam and the increased risk of flooding.

The majority of ice jams occur east of the Continental Divide with the most events occurring in Miles City on the Yellowstone River (44), Bozeman on Hyalite and Bridger Creeks (40), and in the towns of Nashua (36), Sidney (34), Zortman, Wolf Point, and Harlowton with 25 or more recorded events (**Figure 3.3.3-1**). West of the Continental Divide, ice jams occur most frequently on the Clark Fork River with 27 events and in the town of Libby with 13 events (**Figure 3.3.3-2**). The most ice jams reported for one river have occurred on the Missouri River, with 157 events, followed by the Yellowstone with 106, and the Milk River with 103 events. Note that this database is dependent on reported ice jams, and in many instances, particularly in rural areas, many ice jams may go unreported. **Table 3.3.3-1** summarizes some of the damages caused by ice jams.

Table 3.3.3-1 Ice Jams in Montana

For Montana residents living near rivers, ice jams can cause loss of life, damage to property, roads and structures, and disruption of lives. Examples of some of the damages caused by ice jams are listed below.

Loss of Life:

- 1894: Three men died while trying to escape ice jam flood waters in the Glendive area.
- 1899: Twelve people lost their lives to an ice-jam and flash flood in the Glendive area on the Yellowstone River.
- 1996: A volunteer in Fort Benton collapsed and died from a heart attack as he was helping to load sandbags.
- 1996: Two died because of ice jam flooding.

Property Damage:

- 1881: Main Street in Miles City filled with water from an ice jam in March. Residents evacuated to higher ground for one week, which they spent in tents, waiting for the floodwaters to recede.
- 1944: An ice jam on the Tongue and Yellowstone Rivers in Miles City caused 300 to 500 people to be evacuated from their homes.

Agricultural Damage:

- 1972: Yellowstone River ice jam in Richland County inundated 2500 acres of farmland, resulting in loss of fertilizer and damage to fill ditches.
- 1994: Rosebud County ice jam caused a flash flood that killed 60 cattle, a loss of \$60,000.

Environmental Damage:

- 1996: Fish killed in the Blackfoot River by habitat destruction and disruption of spawning activity.
- 1996: Fish killed in Clark Fork River by ice jam scouring and releases of soils contaminated with metals toxic to fish.

Source: USACE CRREL, 1998

Figure 3.3.3-1

Montana Cities and Streams East of the Continental Divide with the Most Reported Ice Jams

Source: National Weather Service, 2007



Figure 3.3.3-2 Montana Cities and Streams West of the Continental Divide with the Most Reported Ice Jams
Source: National Weather Service, 2007

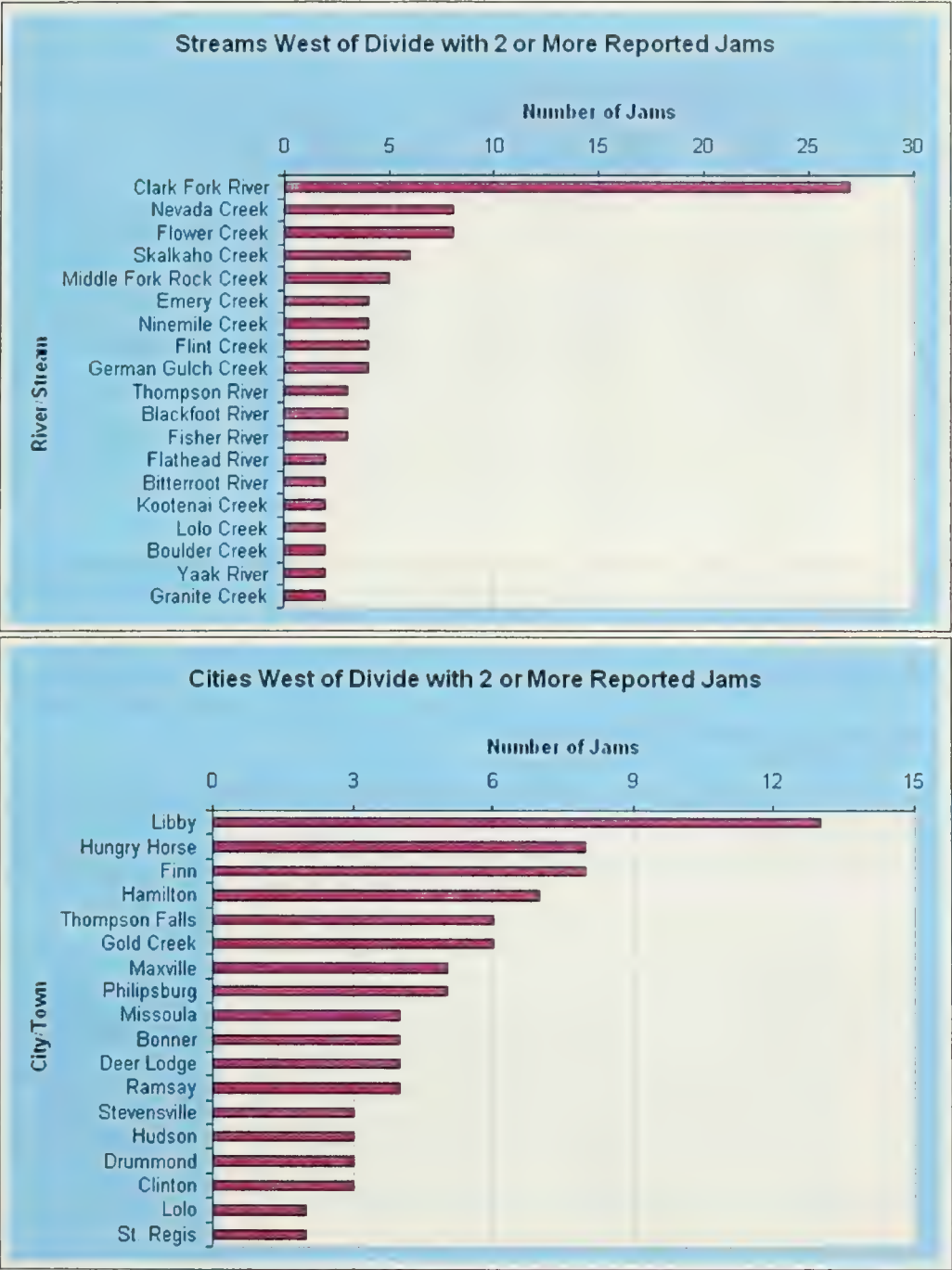
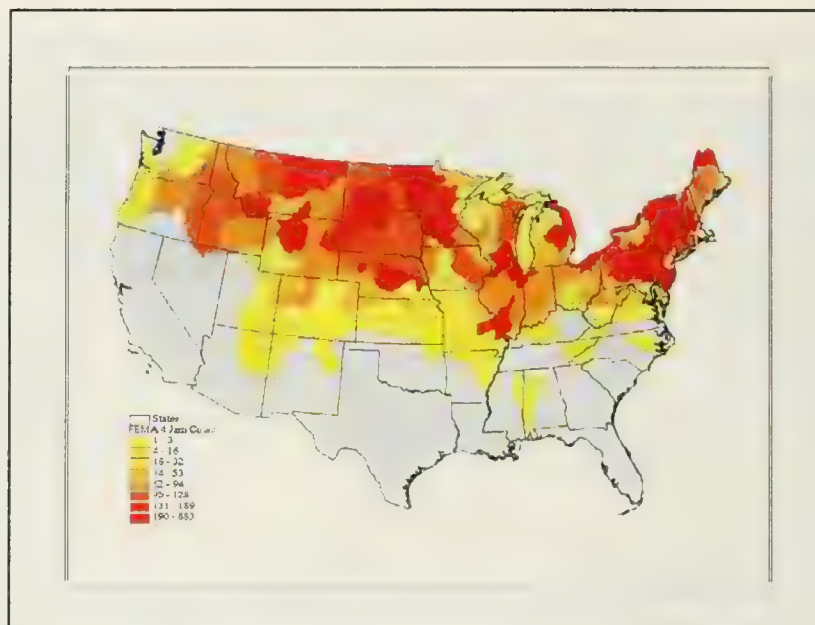


Figure 3.3.3-3**Number of Ice Jams in the U.S. Shown by Hydrologic Unit**

Source: USACE CRREL, 2007



Approximately 11 percent of the reported ice jams in Montana have known damages. The most common damages include bridge and residential damage, road flooding, evacuations, dike and levee damage, and agricultural damage. There have been at least 17 deaths from ice jam flooding in Montana. The majority of these deaths were due to flash floods released during ice jam break-up (USACE CRREL, 1998 and 2004).

3.3.3.2.6 Dam Failure Floods in Montana

Dam failure floods in Montana have primarily been associated with riverine and flash flooding. Nevertheless, the potential for a major flood occurring solely as a result of dam failure is a real possibility. Dam-failure related flooding in Montana is summarized in **Table 3.3.3-2**. As shown in the table, there have been 34 deaths and extensive property damage from dam-failure flooding in Montana.

Table 3.3.3-2 Montana Dam Failures and Incidents

Date	Event	Damages
June 4, 1908	White's Reservoir Dam near Butte failed leaving the city without phones, telegraphs, electricity, street cars, or railroad service.	
July 11, 1916	Superior Dam , north of Meaderville, broke and flooded northeast Butte with mine tailings.	\$8,000
1927	Pattengail Creek Dam in Beaverhead County failed causing four known deaths and near complete destruction of the towns of Dewey and Wise River.	4 deaths
March 1939	Midway Dam , 40 miles northwest of Nashua, breached during the Porcupine Creek flood when the spillway was undermined by huge floating ice cakes. When the dam failed, a four-foot liquid wall swept down the valley causing extensive damage.	

Table 3.3.3-2 Montana Dam Failures and Incidents

Date	Event	Damages
July 1946	Carrol Dam , located eight miles northwest of Plentywood , failed following several inches of rain in a short timeframe. There were no fatalities attributable to the dam failure but destruction was evident throughout the 15 mile valley which took the brunt of the flood. Several homes and farm buildings were destroyed.	
April 1952	Frenchman Dam on Frenchman Creek failed upstream of the Milk River. The dam was located in Phillips County, 20 miles north of Saco. The dam failure caused the highest peak ever recorded on the Milk River below its confluence with Frenchman Creek.	\$150,000
1964	Failure of Swift Reservoir on Birch Creek and Two Medicine Dam on Two Medicine Creek resulted in the loss of 30 lives on the Blackfoot Indian Reservation.	30 deaths
June 20, 1984	Browns Lake Dam , located in Beaverhead County , was overtopped resulting in washed out roads and bridges downstream.	Property damage: \$100,000
July 11, 1996	Incident Response in Granite County (EO 16-96) for the possible failure of the East Fork of Rock Creek Dam .	
June 1, 1998	Incident Response for Tin Cup Dam (EO 9-98). State response to a leak in Tin Cup Dam, located in the Selway-Bitterroot Wilderness Area of the Bitterroot National Forest, Ravalli County.	
Spring 1998	Anita Dam outlet failure – BLM dam – north of Chinook. Evacuation necessary.	
Summer 2002	Failure of Ross Dam in Garfield County; evacuation necessary but limited damage downstream.	

Source: MDES, 1998 and 2003; Maxim, 2003a, 2003b; BSHM 2004

3.3.3.3 Declared Disasters from Flooding

Montana counties with emergency and disaster declarations for floods since 1974 are shown in **Table 3.3.3-3**. There has been \$24 million in Federal and over \$5.5 million in State assistance for damages to public structures and infrastructure in the past 33 years, or about \$1 million per year.

Table 3.3.3-3 State and Federal Declarations for Flooding in Montana (1974 through 2006)

Year	State and Federal Declarations (number)	Public Assistance			Individual Assistance		Total
		Federal	State	Local	Federal	State	
1974	FDAA-417-DR-MT	\$603,144					\$603,144
1975	FDAA-472-DR-MT and IFG-267 Grants	\$2,070,551			\$385,023	\$128,341	\$2,583,915
1976	Town of Froid		\$31,268	\$718			\$31,986
1978	FDAA-558-DR-MT and IFG-226 Grants	\$3,838,126	\$140,876	\$25,874	\$465,015	\$155,005	\$4,624,896
1979	Fergus & Petroleum Counties		\$97,048	\$885			\$97,933
1981	FEMA-640-DR-MT; FG-486 Grants	\$4,733,120	\$944,132	\$313,286			\$5,990,538
1984	Beaverhead and Madison County		\$607,600	\$51,559			\$659,159
1986	FEMA-761/777-DR-MT; IFG-106 Grants	\$2,390,854	\$212,442	\$584,501	\$127,209	\$42,403	\$3,357,409
1991	EO 12-91; EO 14-91; EO 15-91; EO 24-91		\$570,459	\$94,849			\$665,308
1993	EO 11-93		\$105,630	\$15,910			\$121,540
1994	EO 04-94; EO 05-94		\$64,156	\$4,339			\$68,495

Table 3.3.3-3 State and Federal Declarations for Flooding in Montana (1974 through 2006)

Year	State and Federal Declarations (number)	Public Assistance			Individual Assistance		Total
		Federal	State	Local	Federal	State	
1995	EO 1-95; EO 15-95		\$38,994	\$385			\$39,379
1996	EO 12-96		\$196,876	\$128,484			\$325,360
1996	EO 3-96; FEMA 1105-DR-MT	\$1,820,739	\$241,888	\$365,006			\$2,427,633
1996	EO 7-96; FEMA 1113-DR-MT	\$1,480,471	\$179,892	\$313,594			\$1,973,957
1997	EO 4-97; 5-97; 6-97; 7-97; 12-97; FEMA-1183-DR-MT	\$5,762,964	\$583,222	\$1,413,362			\$7,759,548
1997	Ice Jams (EO 2-97)		\$1,988				\$1,988
1999	EO 3-99		\$546,305	\$10,062			\$556,367
2001	EO 19-01		\$56,322	\$15,424			\$71,746
2002	EO 13-02 FEMA 1424-DR-MT	\$1,424,941	\$35,783	\$439,197			\$1,899,921
2003	EO 4-03; 5-03		\$14,260	\$92,898			\$107,158
2005	EO 09-05; 11-2005 15-2005	\$788,055	\$98,220			\$886,275	\$788,055
2006	EO 39-06		\$112,000	\$143,374			\$255,374
TOTAL		\$24,124,910	\$5,569,196	\$4,111,927	\$977,247	\$325,749	\$35,109,029

Source: MDES, 2007

Damages by types of floods from 1997 to 2006 are listed in **Table 3.3.3-4**.**Table 3.3.3-4 Ten-Year NOAA Montana Flood Summary (1997 through 2006)**

Location or County	Death	Injuries	Property Damage	Crop Damage	Total
Flash Floods	0	0	\$9,191,000	\$675,000	\$9,866,000
Regional Floods	0	0	\$4,496,000	0	\$4,496,000
Urban/Small Streams	0	0	\$75,000	0	\$75,000
TOTAL	0	0	\$13,762,000	\$675,000	\$4,571,000

Source: NOAA-NCDC, 2007

3.3.3.4 Vulnerability to Flooding

Flooding becomes a hazard when people compete with nature for the use of floodplains. If floodplain areas were left in their natural state, flooding would not cause major damage. Urban, industrial and other surface development in natural floodplain areas of Montana has increased the vulnerability to serious flooding. The extent of artificial surface area created by development prevents rainfall from soaking into the ground and increases the rate of runoff.

3.3.3.4.1 Statewide Vulnerability to Flooding

Riverine and Flash Flooding

Vulnerability to flooding is dependent on local weather conditions, local development patterns and site specific flood water constraints. Some areas can be completely immune to flooding because the steep incised river banks have physically impeded development near the river, limiting flood damage when floodwaters arrive. Other areas experience flooding

annually where meandering rivers have created broad floodplains and development has encroached and impeded floodwaters. Because local conditions have a significant impact on the vulnerability to flooding, historic data on occurrence and loss is the best means to assess flooding vulnerability statewide.

The historic flooding damage indirectly identifies the vulnerability to flooding. The National Flood Insurance Program (NFIP) is the primary insurer for flood insurance in the U.S. The NFIP paid over \$5.3 million in claims from the flooding of insured properties from 1978 through 2006 in Montana (NFIP, 2007). The five counties and five cities with the highest flood insurance claims are shown below in **Table 3.3.3-5**. Note that although flood insurance claims are being used to show past losses, this data is not an entirely accurate representation of flood losses. Many homeowners without flood insurance may have sustained flood damages and those losses would not be reflected in these figures.

Figure 3.3.3-4 is intended to show the relative exposure to flooding in counties across the state. It displays the relative aggregate amount of insured property for flood damage within a county. For each county, the total flood damage claims in dollars for insured properties from January 1978 through January 2007 is shown. Communities with flood hazard areas that are not participating in the NFIP are also identified. **Table 3.3.3-5** shows the communities with the most flood insurance claims by dollar amounts.

Table 3.3.3-5 Communities With Highest Flood Insurance Claims (January 1978 to January 2007)

Counties	Insurance Claim Amount	Cities	Insurance Claim Amount
Park	\$659,965	Miles City	\$261,723
Valley	\$431,038	Roundup	\$212,754
Sweet Grass	\$378,110	Billings	\$190,055
Missoula	\$326,891	Columbia Falls	\$110,829
Yellowstone	\$301,913	Bozeman	\$110,466

Source: NFIP, 2007

Montana has 43 known Repetitive Loss (RL) Properties as listed in **Table 3.3.3-6**. There are currently no known Severe Repetitive Loss (SRL) properties in the state of Montana. Both the State Hazard Mitigation Officer and the State Floodplain Administrator are committed to encourage the jurisdictions that contain these structures to pursue mitigation actions with the respective private owners through various FEMA funding streams, either through PDM, FMA, RL, HMGP and SRL if any properties are so designated in the future.

Table 3.3.3-6 Top 50 Communities with Highest Number of Repetitive Loss Properties as of April 30, 2007

Community	Community Number	Number of Repetitive Loss Properties	% of Total Found in this Community
Valley County*	300171	14	32.56%
Park County	300160	7	16.28%
Cascade County	300008	3	6.98%
Billings, City of	300085	2	4.65%
Lincoln County*	300157	2	4.65%
Meagher County*	300046	2	4.65%
Missoula County*	300048	2	4.65%
Yellowstone County*	300142	2	4.65%
Carbon County*	300139	1	2.33%

Table 3.3.3-6 Top 50 Communities with Highest Number of Repetitive Loss Properties as of April 30, 2007

Community	Community Number	Number of Repetitive Loss Properties	% of Total Found in this Community
Glasgow, City of	300178	1	2.33%
Great Falls, City of	300010	1	2.33%
Lake County*	300155	1	2.33%
Lewis and Clark County*	300038	1	2.33%
Malta, City of	300054	1	2.33%
Missoula, City of	300049	1	2.33%
Phillips County*	300162	1	2.33%
Ravalli County*	300061	1	2.33%

The strategy is to work with local communities to review repetitive loss structures, utilize previous mitigation plans and develop project plans which would include multi-agency collaboration where possible. Valley and Park Counties together have had over 50% of the losses for the state. Floodplain mitigation planning work has already been completed in these communities. Valley County has in place a 2000 Flood Hazard Mitigation Plan and a 2003 Pre-Disaster Mitigation Plan including projects that would reduce flooding hazards. Guidance for general floodplain mitigation is included in the Park County Flood Hazard Mitigation Plan dated 1998 while newer information is included their 2006 Pre-Disaster Mitigation Plan. In addition to Valley and Park Counties 15 other jurisdictions have incurred repetitive losses. One to three structure losses have occurred in these communities and hence would be a lower three year priority than efforts planned for Valley and Park Counties, but all of these 15 jurisdictions will also be encouraged by the State of Montana to consider and pursue mitigation actions for these properties as well.

Ice Jam Flooding

Ice jam flooding is more likely to occur in break-up events as opposed to freeze-up events. Sudden seasonal changes are the greatest factor increasing the risk of ice jam flooding. Prolonged cold periods causing significant ice formation followed by unseasonably warm periods in the winter or spring are likely formulas for ice jams. The best means to determine vulnerability is to evaluate patterns and frequency of previous ice jam flooding. Ice jam events recorded the by U.S. Army Corps of Engineers (USACE CRREL, 2007) have been plotted to show spatial occurrence (**Figure 3.3.3-5**). Areas that experienced ice jam events in the past are the most likely to experience future flooding related to ice jams.

Dam Failure Flooding

Vulnerability to dam failure flooding is compounded by differences in the dam inundation areas versus the 100-year floodplain. Floodplain development, in most cases, is regulated, whereas dam inundation areas are not. Extreme rain and snow melt events can exceed the flood storage capacity of even large reservoirs. At such times, the excess water that passes over the spillway (the primary purpose of which is to protect the dam) may cause damages downstream that approach those damages that would have occurred had the flood control dam not been built. In addition, the failure of a dam can produce extreme, rapid flood damages outside the 100-year or even 500-year floodplains (MDES, 1996). High hazard dams and population density are shown on **Figure 3.3.3-6**.

Montana has approximately 3,544 dams (DNRC, 2007). Of these dams, 182 are considered "high-hazard dams", indicating they are upstream from populated areas (**Figure 3.3.3-5**). **Table 3.3.3-7** summarizes the hazard categories of dams by type of ownership.

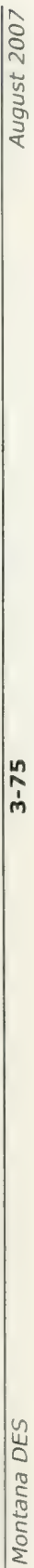


Figure 3.3.3-5 Ice Jam Locations

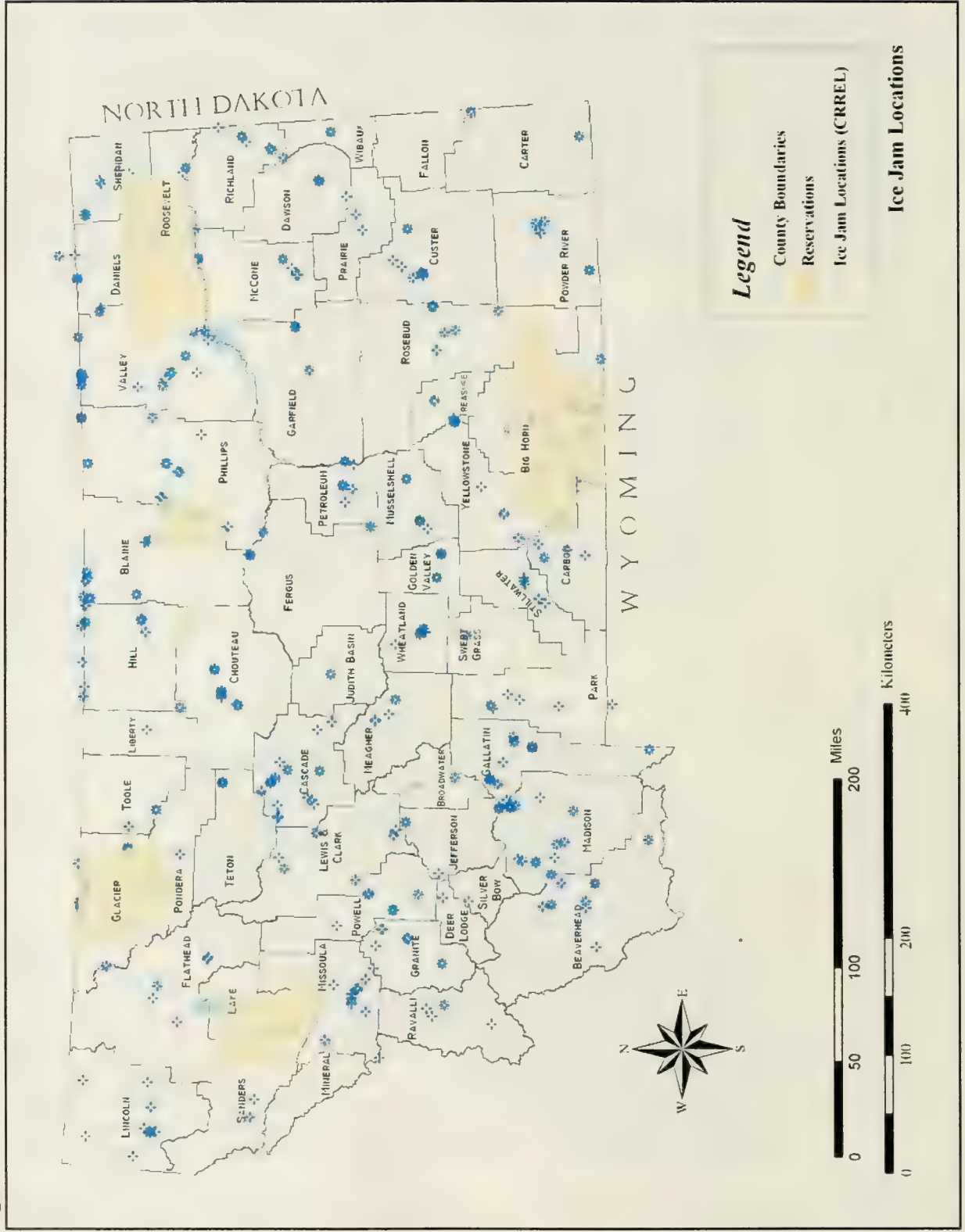


Figure 3.3.3-6 High Hazard Dams and Population Density



Table 3.3.3-7 Number of Dams within the State of Montana

Hazard Categories	Federal Dams	State Dams	Local Government Dams	Public Utility Dams	Private Dams	Total
High	44	33	37	19	49	182
Significant	24	2	3	3	137	169
Low	480	135	38	3	2,537	3,193
TOTAL	548	170	78	25	2,723	3,544

Source: Montana DNRC, 2007

Dams with Deficiencies or Requiring Further Analysis

In 1981, the United States Army Corps of Engineers (USACE) completed inspection of non-Federal dams in Montana. Generally, the USACE inspected dams that were at least 25 feet high or impounded at least 50 acre-feet of water and were located upstream from populated areas or areas where dam failure could cause serious property damage. Deficiencies were found in 32 of the dams inspected by the USACE (MDES, 1996). Since that time, the Montana DNRC has determined that 28 of the 32 dams meet State standards, either because of reduction in storage capacity, rehabilitation, or re-evaluation (Lemieux, 2007). **Table 3.3.3-8** shows the remaining dams on the 1981 USACE list, plus five other dams determined deficient by DNRC.

Table 3.3.3-8 Non-Federal Dams in Montana Requiring Further Analysis or Rehabilitation

Name	County	River	Nearest Community	Owner
East Fork Dam ¹	Fergus	East Fork Big Spring	Lewistown	City of Lewistown
Big Sky Dam ²	Madison	Middle & West Forks, Gallatin River	Gallatin Gateway	Big Sky of Montana, Inc.
Ruby Dam ³	Madison	Ruby River	Alder	MT DNRC
Yellow Water Main ¹	Petroleum	Yellow Water Creek	Mosby	MT DNRC
Upper Taylor Dam ²	Powell	Upper Taylor Creek	Deer Lodge	MT Dept. of Corrections
Northern Pacific Reservoir Dam	Jefferson	McClellan Creek	East Helena	Asarco, Inc.
Lake Frances ³	Pondera		Valier	Pondera Canal and Reservoir Company
Beaver Creek Dam ³	Hill	Beaver Creek	Havre	Hill County
Ackley Lake Dam ³	Judith Basin	Hauck Coulee	Hobson	MT DNRC

¹ Compliance with spillway standards has not yet been completed.² Analysis of spillway capacity is currently underway³ Scheduled for rehabilitation in the next five years

Source: Lemieux, 2007

3.3.3.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.3-7 presents the Hazard Risk Map of flooding. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Figure 3.3.3-7 Hazard Risk Map: Flood

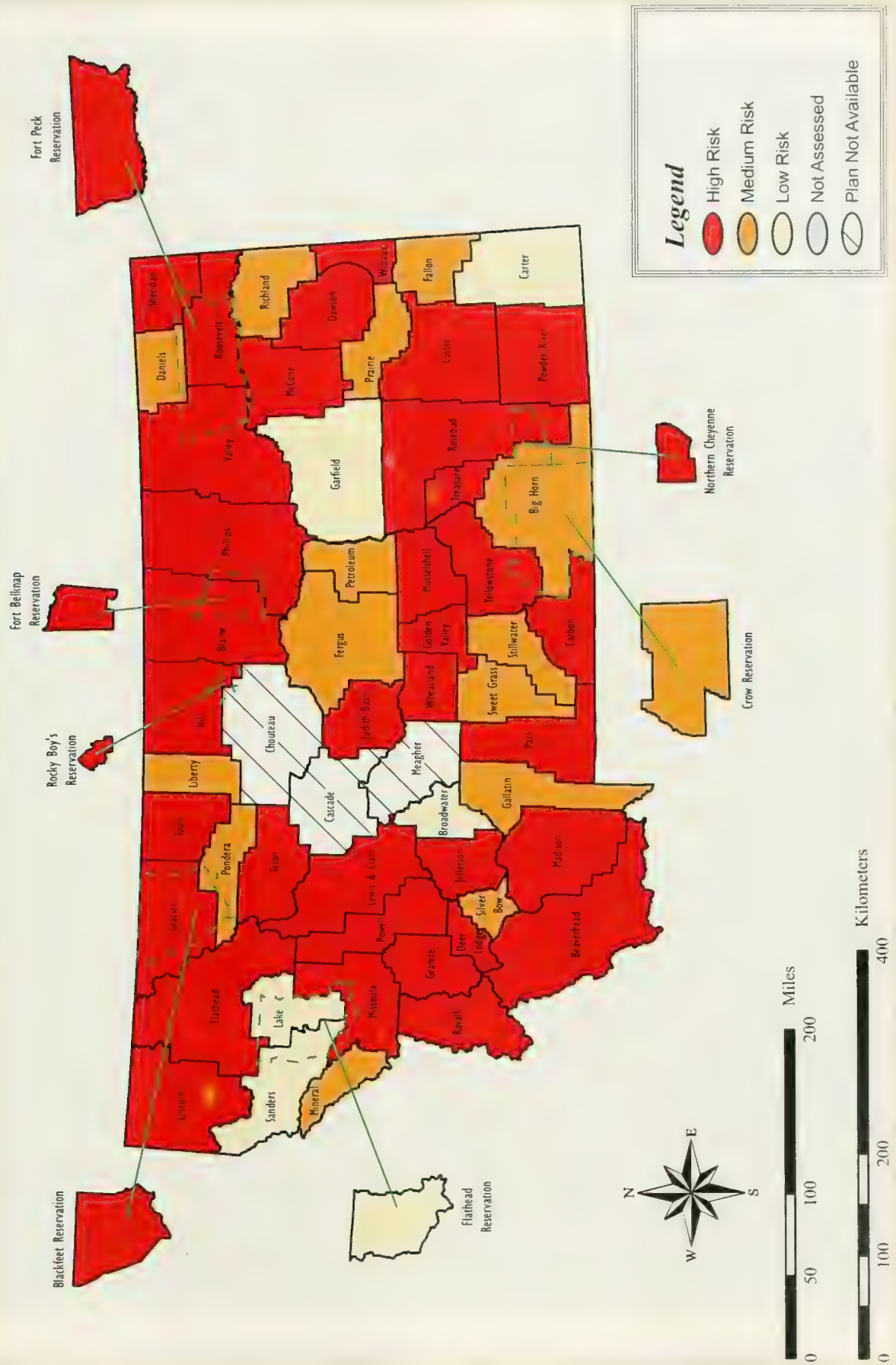


Table 3.3.3-9 presents a summary of potential loss estimates due to flooding as calculated in the Local PDM Plans. Some Local Plans calculated a separate loss figure for flooding associated with dam failure, ice jams, and riverine flooding, while other Local Plans presented one combined figure for all types of flooding. Flooding loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.3-9** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Table 3.3.3-9 Potential Losses from Local Plans: Flooding

DES District	Type of Flooding	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Dam Failure	Deer Lodge County	Moderate	Moderate	Moderate	1
1	Dam Failure	Flathead County	High	High	High	8
1	Dam Failure	Granite County	Moderate	Moderate	Moderate	1
1	Dam Failure	Lincoln County	3	2	NA	9
1	Dam Failure	Missoula County	\$5-\$10 million	Moderate	NA	10
1	Dam Failure	Ravalli County	\$500 million-\$1 billion	Very High	NA	10
1	Dam Failure	Silver Bow County	\$9 million	Moderate	Moderate	1
1	Ice Jam	Mineral County	\$500,000-\$1 million	Low	NA	10
1	Ice Jam	Missoula County	\$500,000-\$1 million	Low	NA	10
1	Ice Jam	Powell County	High	Low	NA	10
1	Ice Jam	Ravalli County	\$500,000-\$1 million	Low	NA	10
1	Riverine	Deer Lodge County	\$2,500,000	Moderate	High	1
1	Riverine	Flathead County	\$107,000,000	Moderate	Moderate	8
1	Riverine	Flathead Reservation	\$73,171,600	603	NA	2
1	Riverine	Granite County	\$11,500,000	Moderate	Moderate	1
1	Riverine	Lake County	\$73,171,600	603	NA	2
1	Riverine	Lincoln County	2	1	NA	9
1	Riverine	Mineral County	\$8-\$10 million	Moderate	NA	10
1	Riverine	Missoula County	\$30-\$40 million	Moderate	NA	10
1	Riverine	Powell County	High	Low-Medium	NA	10
1	Riverine	Ravalli County	\$5-\$10 million	High	NA	10
1	Riverine	Sanders County	\$7,438,289	1184	NA	2
1	Riverine	Silver Bow County	\$7 million	Moderate	Moderate	1
2	All Types	Blackfeet Reservation	\$13,248,620	326.9	NA	2
2	All Types	Blaine County	\$4,259,351	80.5	NA	2
2	All Types	Fort Belknap Reservation	\$721,429	9.8	NA	2
2	All Types	Rocky Boy's Reservation	\$5,921,240	0.5	NA	2
2	Riverine	Cascade County	U	U	U	
2	Riverine	Chouteau County	U	U	U	
2	Riverine	Glacier County	NA	NA	NA	

Table 3.3.3-9 Potential Losses from Local Plans: Flooding

DES District	Type of Flooding	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
2	Riverine	Hill County	\$15,808,021	339.5	NA	2
2	Riverine	Liberty County	Medium-High	Medium	NA	11
2	Riverine	Pondera County	NA	NA	NA	
2	Riverine	Teton County	NA	NA	NA	
2	Riverine	Toole County	Medium	Low	NA	11
3	Dam Failure	Broadwater County	\$30,000,000	Moderate	Moderate	1
3	Dam Failure	Park County	\$793,000	Moderate	Low	1
3	Ice Jam	Broadwater County	\$1,500,000	Moderate	Moderate	1
3	Riverine	Beaverhead County	\$15,100	389	NA	5
3	Riverine	Broadwater County	\$1,800,000	Moderate	Moderate	1
3	Riverine	Gallatin County	Moderate	Moderate	Moderate	12
3	Riverine	Jefferson County	NA	NA	NA	
3	Riverine	Lewis & Clark County	\$2,000,000	NA	NA	6
3	Riverine	Madison County	NA	NA	NA	
3	Riverine	Meagher County	U	U	U	
3	Riverine	Park County	\$18,900,000	Moderate	Moderate	1
3	Riverine	Sweet Grass County	NA	NA	NA	
4	Dam Failure	Carter County	Low	Low	Low	12
4	Dam Failure	Fallon County	\$48,000 per home	NA	\$877,193	8
4	Dam Failure	Richland County	\$150,000	NA	NA	3
4	Riverine	Carter County	Low	Low	Low	12
4	Riverine	Custer County	\$5.7 to \$43.2 million	Moderate	NA	13
4	Riverine	Dawson County	\$11,562,00	NA	NA	8
4	Riverine	Fallon County	\$111,421 to \$557,102	NA	NA	8
4	Riverine	Garfield County	\$1,480,000	Moderate	Moderate	1
4	Riverine	McCone County	\$238,706	NA	\$384,615	3
4	Riverine	Powder River County	\$8 million	Moderate	Moderate	1
4	Riverine	Prairie County	\$36.5K per home; \$90k per mile	NA	\$877,000	3
4	Riverine	Richland County	\$801,826	NA	\$384,615	3
4	Riverine	Wibaux County	\$1,259,125	Low	\$1,284,372	3
5	All Types	Golden Valley County	\$124,956	2.81	NA	2
5	All Types	Musselshell County	\$1,642,170	49.61	NA	2
5	All Types	Wheatland County	\$1,505,988	12	NA	2
5	Dam Failure	Big Horn County	High	High	High	3
5	Dam Failure	Crow Reservation	High	High	High	3
5	Dam Failure	Northern Cheyenne Reservation	Low	Low	Low	3
5	Dam Failure	Stillwater County	\$11,500,000	NA	NA	8
5	Riverine	Big Horn County	Millions	Moderate	\$23 million	3
5	Riverine	Carbon County	\$800,000	NA	NA	8
5	Riverine	Crow Reservation	Millions	High	Millions	3
5	Riverine	Northern Cheyenne Reservation	Millions	Moderate	Millions	3
5	Riverine	Rosebud County	High	Moderate	Moderate	1
5	Riverine	Stillwater County	NA	NA	NA	

Table 3.3.3-9 Potential Losses from Local Plans: Flooding

DES District	Type of Flooding	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Riverine	Treasure County	High	Moderate	Moderate	1
5	Riverine	Yellowstone County	NA	NA	NA	
6	All Types	Daniels County	\$3,042,849	40.8	NA	2
6	All Types	Fort Peck Reservation	\$75,166,470	1,779.8	NA	2
6	All Types	Judith Basin County	\$582,000	7.3	NA	2
6	All Types	Phillips County	\$11,623,542	182.1	NA	2
6	All Types	Roosevelt County	\$78,227,304	1,990.2	NA	2
6	All Types	Sheridan County	\$7,142,582	98.6	NA	2
6	All Types	Valley County	\$88,417,740	1,319.7	NA	2
6	Dam Failure	Fergus County	NA	10	10	4
6	Riverine	Fergus County	NA	8	10	4
6	Riverine	Petroleum County	NA	NA	NA	

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, societal, and economic loss.

3.3.3.4.3 Vulnerability of State Property

The State completed a floodplain determination on the 4,300 buildings owned or leased by the State. The results identified 29 buildings located within flood hazard zones (**Table 3.3.3-10**). The total building exposure is \$24.4 million (based on insured amount) and \$7.8 million in content. Assuming an average flood depth of 2 feet, a loss ratio of 22 percent building value and 33 percent content value (FEMA, 2002) was applied resulting in potential losses of \$7.9 million.

Table 3.3.3-10 State Buildings within Flood Hazard Zones

Agency	Identification	City	Building Insured Amount	Content Insured Amount
Fish, Wildlife & Parks	Big Springs Hatchery-Lewistown	Lewistown	\$385,632	\$257,136
Fish, Wildlife & Parks	Region 7 Headquarters	Miles City	\$1,045,654	\$968,272
Fish, Wildlife & Parks	Intake Structure	Miles City	\$138,216	\$62,400
Fish, Wildlife & Parks	Raceways-Big Springs Hatchery	Lewistown	\$310,789	\$0
Fish, Wildlife & Parks	Maintenance Shop (aka Old Hq)	Miles City	\$385,632	\$85,696
Justice	Gymnasium	Helena	\$503,464	\$47,133
Labor & Industry	Miles City Job Service	Miles City	\$254,623	\$119,229
Military Affairs	Chinook Armory	Chinook	\$890,562	\$278,304
Military Affairs	Chinook Organizational Maintenance Shop	Chinook	\$228,724	\$154,260
Natural Resources	Rubber Dams	Toston	\$1,560,000	\$572,000
Transportation	Miles City Equipment Storage	Miles City	\$500,000	
Transportation	Glendive Six-Stall Equipment Storage	Glendive	\$275,558	\$520
Transportation	Browning Equipment Storage	Browning	\$266,698	\$520
Transportation	Glendive Eight-Stall Equipment Storage	Glendive	\$259,584	\$520
Transportation	Miles City Office/Shop II	Miles City	\$1,446,069	\$494,894
Transportation	Miles City Old Shop	Miles City	\$342,399	\$140,400
Transportation	Glendive Office/Shop	Glendive	\$1,809,701	\$640,640
Transportation	Browning Equipment Storage	Browning	\$294,320	\$73,984

Table 3.3.3-10 State Buildings within Flood Hazard Zones

Agency	Identification	City	Building Insured Amount	Content Insured Amount
Transportation	Rest Area	Bridger	\$385,301	\$6,240
Transportation	Rest Area	Emigrant	\$678,287	\$20,280
Transportation	Rest Area	Dutton	\$418,372	\$8,320
Transportation	Weigh Station	Kalispell	\$20,800	\$60,320
Montana Tech of UM	College Of Technology	Butte	\$8,033,460	\$2,465,226
Justice	Cafeteria	Helena	\$942,656	\$374,920
Transportation	Rest Area	Hathaway	\$836,742	\$8,320
Corrections	Leased - Missoula	Missoula	\$0	\$285,842
Transportation	Rest Area	Gold Creek	\$418,372	\$8,320
Military Affairs	Libby Armory	Libby	\$1,732,952	\$515,320
Transportation	Rest Area	Drummond	\$41,600	\$120,640

Source: Intermountain Hazards, 2003; DOA, Risk Management and Tort Defense Division, 2007

3.3.3.5 Impact on Future Development

Montana law prevents development of structures in the floodway but with a permit, structures may be developed in the 100-year floodplain. Many counties have more stringent floodplain regulations than the state that are enforced. Floodplain regulations are in place to promote the public health, safety and general welfare, to minimize flood losses in areas subject to flood hazards and to promote wise use of the floodplain. The state floodplain requirement of a freeboard of two feet reduces the vulnerability of new development in the mapped flood zones. This proactive approach to floodplain management helps in making new construction less prone to flood damages. However, the program is only as good as the mapping, and in some instances, development may be occurring in unmapped, flood prone areas.

Much of the growth in Montana is occurring near rivers and streams. The Montana Floodplain Association is advocating adoption of the No Adverse Impact approach for floodplain management. No Adverse Impact standards can be incorporated into a community's zoning ordinances, subdivision regulations, building and health codes, and/or special purpose ordinances recognizing that future development can cause impacts elsewhere in the watershed.

Progress has been made on the incorporation of flood-resistant construction standards in both the International Building Code (IBC) and International Residential Code (IRC). Incorporation of standards for flood-resistant construction in these codes will help ensure that building officials become involved in that part of the floodplain management process that deals with how buildings are constructed.

Several areas experiencing growth and development in Montana are within dam inundation areas. Future development below dams can have significant financial impact on dam owners. When new development occurs in the inundation area below an existing dam that previously lacked downstream hazards, the dam could be reclassified as "high hazard". High hazard dams are required to meet stringent requirements for design, construction, inspection and maintenance. Bringing a dam up to high hazard design standards can be costly for a dam owner. Even for dams already classified as high hazard, additional downstream development can still have a financial impact. Spillway design standards are based on potential for loss of life downstream. As the population at risk increases, the spillway design standard increases. A dam that is currently in compliance with state design

standards can suddenly be out of compliance after a subdivision is built downstream. Rebuilding a spillway to provide additional capacity can also be costly for the dam owners, often exceeding a million dollars. To go along with the spillway improvements, the inundation areas have to be evaluated for risk and hazard assessment. The liability of the dam owner's increase with development which can lead to increased insurance rates.

Without consideration of dam failure during the subdivision permitting process, future development could place residences and businesses in high hazard areas. Knowledge of a home or subdivision being in a dam's inundation area may not be known by home owners.

3.3.3.6 Flooding Data Limitations

Limitations to State Building Data

To effectively determine vulnerability for State property, data identifying locations of State buildings is necessary to determine the exposure and vulnerability. The current Montana Department of Administration, Risk Management and Tort Defense Division PCIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid).

USACE CRREL Ice Jam Data (1998, 2004) Limitations

A substantial amount of the USACE Cold Regions Research and Engineering Laboratory (CRREL) (1998 and 2004) information on ice jams in Montana (about 80 percent) has come from USGS Water Supply Paper 1679 published in 1966. Other publications include NWS statements, Corps of Engineers' Datacols, other USGS publications, newspapers, and personal accounts. It is important to note that the high number of recorded ice jam events on the Missouri, Yellowstone, and Milk Rivers compared to other rivers in the state reflects information gathered during field visits to that area in August 1997. There could be other rivers that experienced more ice jams than the Missouri River, but because there are few people living near the river, few if any floods or ice jams are ever reported.

The number of ice jams reported in the database for certain years largely depends on the jam location and the availability of jam records. The number of ice jam events reported in Montana increased from the 1940s to the mid-1960s, most likely because of the USGS Water Supply Paper 1679, published in 1966. Because this publication accounts for such a large portion of the Montana ice jam events in the database, it is no surprise that dates prior to its publication would have few recorded ice jam events.

3.3.3.7 Flooding References

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3.3.4 Hazardous Material Incidents

Hazardous materials are chemical substances, which if released or misused can pose a threat to the environment or health. Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. These substances are most often released as a result of transportation accidents or because of chemical accidents in plants.

3.3.4.1 Background

- A hazardous materials accident can occur anywhere. Communities located near chemical manufacturing plants are particularly at risk. However, hazardous materials are transported on our roadways, railways and waterways daily, so any area is considered vulnerable to an accident.
- Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property.
- Varying quantities of hazardous materials are manufactured, used, or stored at an estimated 4.5 million facilities in the United States--from major industrial plants to local dry cleaning establishments or gardening supply stores.
- As many as 500,000 products pose physical or health hazards and can be defined as "hazardous chemicals." Each year, over 1,000 new synthetic chemicals are introduced.
- The Emergency Planning and Community Right-to-Know Act requires that detailed information about hazardous substances in or near communities be available at the public's request. The law provides stiff penalties for companies that fail to comply and allows citizens to file lawsuits against companies and government agencies to force them to obey the law.
- The Montana Department of Transportation (MDT) regulates transportation routes and speed limits used by carriers and monitor the types of hazardous materials crossing state lines.
- Between 1997 and 2006, there was an annual average of 16,379 hazardous materials transportation incidents nationwide. In 2005, there were 15,917 transportation incidents that resulted in 34 deaths and 938 injuries.
- The most common type of transportation hazardous material incident is from highway crashes (**Table 3.3.4-1**), followed by air incidents.
- Nationwide, most oil, chemical, and other discharges to the environment are from fixed facilities (37 percent) (**Figure 3.3.4-1**). In contrast, discharges from mobile facilities, including railroad, airline, and trucking, total about 16 percent.
- Montana has 4,379 EPA-regulated facilities. These fixed facilities are responsible for discharge to water, have toxic releases, handle hazardous waste, are Superfund facilities, and/or have airborne discharges.

Sources: FEMA, 2004; EPA, 2007; NRC, 2007

Table 3.3.4-1 Hazardous Materials Incidents in the U.S. by Transportation Mode (1997 through 2006)

Mode of Transportation	Number of Accidents	Associated Deaths	Associated Injuries	Damages
Air	13,038	0	170	\$2,736,156
Highway	141,525	126	1,536	\$428,094,713
Railway	9,002	17	1,089	\$156,781,906
Water	221	0	17	\$3,880,738
Total	163,786	143	2,812	\$591,493,513

Source: USDOT, 2007

Table 3.3.4-5 Large Fixed Facility Spills (1997 through 2006)

Location/County	Date	Substance(s)	Amount	Units
Bozeman/Gallatin	7/17/1998	Asphalt Grinding	20,000	Pounds
Billings/Yellowstone	9/20/2006	Hydrofluoric Acid	130,000	Pounds
Billings/Yellowstone	11/11/1998	Sulfur Dioxide	27,500	Pounds
Great Falls/Cascade	12/5/2002	Oil: Diesel	15,000	Barrels
Great Falls/Cascade	10/6/1999	Oil, Fuel: No. 2-D	1,200	Barrels
Laurel/Yellowstone	9/23/1998	Unleaded Gasoline	630	Barrels
Billings/Yellowstone	11/16/1999	Oil, Fuel: No. 2-D	350	Barrels
Belfry/Carbon	6/10/2005	Oil: Crude	270	Barrels
East Helena/Lewis and Clark	5/28/1999	Hazardous Waste D010	8,300	Gallons
Roundup/Musselshell	10/10/1999	Oil: Crude	125	Barrels
Conrad/Pondera	1/31/1997	Oil: Crude	100	Barrels
Great Falls/Cascade	10/2/2002	Oil: Crude	100	Barrels
Colstrip/Rosebud	9/8/1997	Sulfuric Acid (50%)	4,800	Gallons
Belgrade/Gallatin	2/26/1997	Propylene Glycol	2,000	Gallons

Source: NRC, 2007

Alberton Chlorine Spill

On April 11, 1996, 19 cars from a Montana Rail Link (MRL) freight train derailed near Alberton, Montana. Six of the derailed cars contained hazardous materials. One derailed tank car containing chlorine (a poison gas) ruptured, releasing 130,000 pounds of chlorine

into the atmosphere; another tank car containing potassium hydroxide solution (potassium cresylate, a corrosive liquid) lost 17,000 gallons of product; and a covered hopper car containing sodium chlorate (an oxidizer) spilled 85 dry gallons onto the ground. This chlorine spill is the second largest in US history.



Alberton, MT; KPAX TV video; Missoula, MT

About 1,000 people from the surrounding area were evacuated. Approximately 350 people were treated for chlorine inhalation, 123 of whom sustained injury. Nine people, including both members of the train crew, were hospitalized. A transient riding the train died from acute chlorine toxicity.

Photo 3.3.4-1 Alberton Derailment, Chlorine Gas Release

U.S. Interstate Highway 90 (I-90) is roughly parallel and about 150 yards north of the MRL tracks at the accident site. The hazardous material cloud drifted across I-90 resulting in multiple highway traffic accidents. Several motorists were stranded in the cloud after these accidents. I-90 was closed following the accident requiring an 81-mile detour. Monetary damage was estimated to be \$3.9 million.

The Governor of Montana declared a state of emergency in Missoula and Mineral Counties. On April 14, 1996 the evacuation area was reduced to 15 square miles; the residents were temporarily escorted into the area to feed and water livestock animals, retrieve some personal possessions, and locate pets (NTSB, 1998).

3.3.4.3 Declared Disasters from Hazardous Material Incidents

Two separate incidents that occurred within one week are the only two state emergency declarations for hazardous material release: the Alberton Chlorine Spill and derailment involving a chlorine tanker car near Dodson (**Table 3.3.4-6**). The Dodson derailment did not cause a release of the chlorine.

Table 3.3.4-6 State and Federal Declarations for Hazardous Materials in Montana; 1974 through 2006

Incident	Date	Spill	Cost
Train Derailment at Alberton, MT (EO 8-96)	4/11/96	3 Chlorine tank cars	State: \$417
Train Derailment Phillips County, Dodson (EO 9-96)	4/17/96	Chlorine tanker	State: \$3,806

Source MDES, 2007

3.3.4.4 Vulnerability to Hazardous Material Incidents

3.3.4.4.1 Statewide Vulnerability to Hazardous Material Incidents

The volume and type of hazardous materials that flow into, are stored, and flow through communities will determine exposure to a potential release of hazardous materials.

The spill database, and locations of generator facilities and transportation routes (pipeline, rail, interstate) were compiled by county to identify relative vulnerability. Each factor was rated on a scale of 0 to 100, with the maximum of the range equaling 100 and no occurrences equal to zero. Each occurrence per county was factored by 100/max occurrence in that county. The seven factors were averaged to derive a composite index. For example, the maximum number of transportation spills in a single county was 8 for Yellowstone County. Lewis and Clark County had 2 transportation-related hazardous material releases for a score of 2×12.5 , or 25, compared to Yellowstone's score of 100. **Table 3.3.4-7** shows vulnerability scores of the top ten counties for hazardous material spills. **Figure 3.3.4-2** shows the relative vulnerability across the state by county.

Table 3.3.4-7 Counties with High or Moderate Hazardous Material Composite Index

County	Spills		Generators		Miles			Haz Mat Comp Risk Index
	Trans- portation	Fixed Facilities	LQG	TRI	Interstate	Pipeline	Rail	
Yellowstone	8	84	6	16	95	332	168	95.05
Cascade	6	17	3	4	61	118	196	50.68
Missoula	3	17	5	8	55	49	190	49.41
Gallatin	3	8	4	4	44	41	213	41.63
Lewis and Clark	2	16	2	5	50	44	104	31.27
Silver Bow	4	0	4	4	55	0	127	36.29
Jefferson	6	3	0	4	95	5	134	37.52
Rosebud	0	4	2	2	42	56	182	27.60
Flathead	6	2	4	3	0	0	122	30.81
Big Horn	5	16	0	2	82	77	94	34.68
Mineral	5	16	0	0	77	0	138	31.83

Fixed and Transportation Spills from National Response Center database 1997-2006 (NRC, 2007)

LQG: Large Quantity Generators of Hazardous Waste from U.S. EPA Envirofacts Query (EPA, 2007)

TRI: Facilities required to report toxic releases from U.S. EPA TRI Explorer (EPA, 2007)

Interstate: Interstate Miles from NRIS Highway shapefile coverage (NRIS, 2004)

Pipeline: Pipeline Miles from NRIS Pipeline shapefile coverage (NRIS, 2004)

Rail: Rail Miles from NRIS Railroad shapefile coverage (NRIS, 2004)

3.3.4.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.4-3 presents the Hazardous Material Incident Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.4-8 presents a summary of potential loss estimates due to hazardous material incidents as calculated in the Local PDM Plans. Hazardous material loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.4-8** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Figure 3.3.4-2 Hazardous Material Vulnerability Index



Figure 3.3.4-3 Hazard Risk Map: Hazardous Material Incident

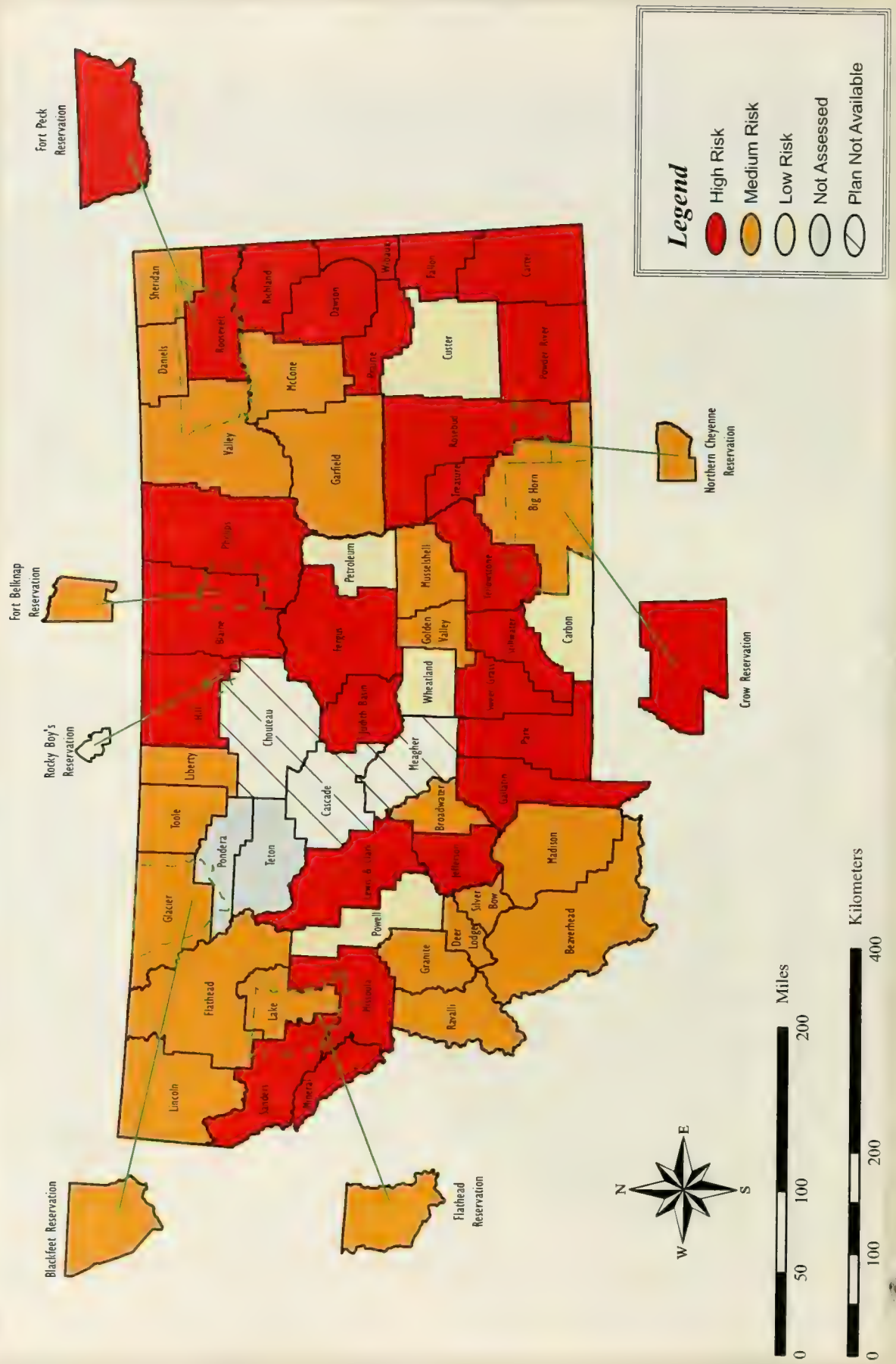


Table 3.3.4-8 Potential Losses from Local Plans: Hazardous Material Incidents

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Low	Moderate	Moderate	1
1	Flathead County	Low	100-2,000	Low	8
1	Flathead Reservation	\$25,934,00	2002	NA	2
1	Granite County	Low	High	Moderate	1
1	Lake County	\$25,934,000	2002	NA	2
1	Lincoln County	NA	2	NA	9
1	Mineral County	\$500,00-\$1 million	Moderate	NA	10
1	Missoula County	NA	NA	NA	
1	Powell County	Low	Low	NA	10
1	Ravalli County	NA	NA	NA	
1	Sanders County	\$20,779,398	1210	NA	2
1	Silver Bow County	Low	100-1,000	Low	1
2	Blackfeet Reservation	\$211,628	5.3	NA	2
2	Blaine County	\$305,516	5.7	NA	2
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	\$6,884	0.3	NA	2
2	Glacier County	NA	NA	NA	
2	Hill County	\$2,616,186	11.8	NA	2
2	Liberty County	NA	Low-Medium	High	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	\$6,405	0.5	NA	2
2	Teton County	NA	NA	NA	
2	Toole County	High	High	NA	11
3	Beaverhead County	\$138,300,000	3,565.8	NA	5
3	Broadwater County	\$15,000,000	High	High	1
3	Gallatin County	Low	High	High	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	479	NA	7
3	Meagher County	U	U	U	
3	Park County	Low	High	High	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	Low	Low	Moderate	12
4	Custer County	NA	NA	NA	
4	Dawson County	\$1,000,000	NA	NA	8
4	Fallon County	\$50,000-\$3 million	NA	NA	8
4	Garfield County	Moderate	544	Moderate-High	1
4	McCone County	NA	Moderate	Millions	3
4	Powder River County	Moderate	1,015	Low	1
4	Prairie County	NA	NA	Millions	3
4	Richland County	NA	Moderate	Millions	3
4	Wibaux County	\$64,000	Moderate	Moderate	3
5	Big Horn County	Severe	Severe	\$6,000,000	3
5	Carbon County	\$53,000	NA	NA	8

Table 3.3.4-8 Potential Losses from Local Plans: Hazardous Material Incidents

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Crow Reservation	\$6,000,000	High	High	3
5	Golden Valley County	\$21,166	0.45	NA	2
5	Musselshell County	\$173,888	2.98	NA	2
5	Northern Cheyenne Reservation	NA	Moderate	Millions	3
5	Rosebud County	Moderate	High	High	1
5	Stillwater County	\$272,000	NA	NA	8
5	Treasure County	Moderate	High	High	1
5	Wheatland County	\$12,090	1.7	NA	2
5	Yellowstone County	NA	NA	NA	
6	Daniels County	\$31,416	0.5	NA	2
6	Fergus County	NA	9	9	4
6	Fort Peck Reservation	\$539,428	14.7	NA	2
6	Judith Basin County	\$94,000	1.6	NA	2
6	Petroleum County	NA	NA	NA	
6	Phillips County	\$28,583	3.2	NA	2
6	Roosevelt County	\$818,726	22.1	NA	2
6	Sheridan County	\$352,794	5.5	NA	2
6	Valley County	\$536,777	7.7	NA	2

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to determine potential building, societal, and economic loss.

3.3.4.4.3 Vulnerability of State Property

Current data and history does not suggest that state property is highly vulnerable to hazardous material releases, however, depending on the proximity of state facilities to hazardous material transportation routes and fixed facilities, some locations may be more vulnerable than others. Since the locations of State buildings have not been geo-referenced, assessing the potential exposure of property and buildings from hazardous material releases would be highly inaccurate.

3.3.4.5 Impact of Future Development

Much of the future development currently occurring in the State is off of the major road and rail networks. The potential does exist for development of agricultural lands bordering the highways and railroad, particularly in the unincorporated parts of the State. Very few restrictions are in place to prevent development in these areas.

3.3.4.6 Hazardous Material Incidents Data Limitations

Fixed facilities that generate or store hazardous materials have not been mapped on a statewide basis. Such mapping, coupled with the type and maximum amount of hazardous material being generated or stored, would allow for the identification of hazard zones surrounding the facility. In addition, the current Montana State building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid). Detailed transportation analyses identifying the types and number of vehicles transporting hazardous materials have not been conducted statewide and could prove useful for future assessments.

3.3.4.7 Hazardous Material Incidents References

FEMA, 2004. Backgrounder: Hazardous Materials.

<http://www.fema.gov/hazards/hazardousmaterials/hazmat.shtm>

Montana Disaster and Emergency Services (MDES), 2007. State and Federal Declared Disasters.

National Transportation Safety Board (NTSB), 1998. Derailment and Hazardous Materials Release with Fatality, Montana Rail Link, Albertson, Montana, April 11, 1996. Railroad Accident Brief Report, Lax 96 Fr 010. <http://www.nts.gov/publictn/1998/RAB9807.pdf>

Natural Resource Information System (NRIS), 2004. Downloadable Datasets for the State of Montana. <http://www.nris.state.mt.us/>

National Response Center (NRC), 2007. Query Download and other data.

<http://www.nrc.uscg.mil/foia.html>

U.S. Environmental Protection Agency (EPA), 2007. EPA Envirofacts. TRI and Large Quantity Generators

U.S. Department of Transportation (U.S. DOT), 2007. Hazardous Material Incident Summary Statistics. <http://hazmat.dot.gov/enforce/spills/spills.htm>

3.3.5 Landslide

The term **landslide**, as used here, includes all types of gravity-caused mass movements of earth material, ranging from rock falls, slumps, rock slides, mud slides, and debris flows. Landslides occur in all 50 of the United States (USGS, 2001).

3.3.5.1 Background

- The surface of the Earth is a collection of slopes that are inherently unstable. When material is exposed at the Earth's surface, weathering and erosional processes immediately begin to break it apart and move it.
- Earth movement may occur suddenly as catastrophic landslides or rockfalls, but more commonly, occurs almost imperceptibly as the slow creep of soil down gentle slopes.
- Precipitation, topography, geology, and human activities can all trigger landslides.
- In landslide-prone areas, anything affecting slope condition, such as construction, seismic activity, or increased soil moisture, may cause movement or may reactivate prior movement.
- Recent landslide movements often are the reactivation of smaller sections of older, unstable landslide masses.
- Slope failures are often triggered by human activities, including mining and construction of highways, buildings and railroads.
- Landslides can damage and destroy homes, roads, railroads, pipelines, electrical and telephone lines, mines, oil wells, commercial buildings, canals, sewers, bridges, dams, airports, forests, parks, and farms.
- According to FEMA (1997), best estimates of losses attributed to landslides in the United States are 25 to 50 lives per year and \$1-2 billion in property damage.

Sources: USGS, 2004; MBMG, 2002

3.3.5.2 History of Landslides in Montana

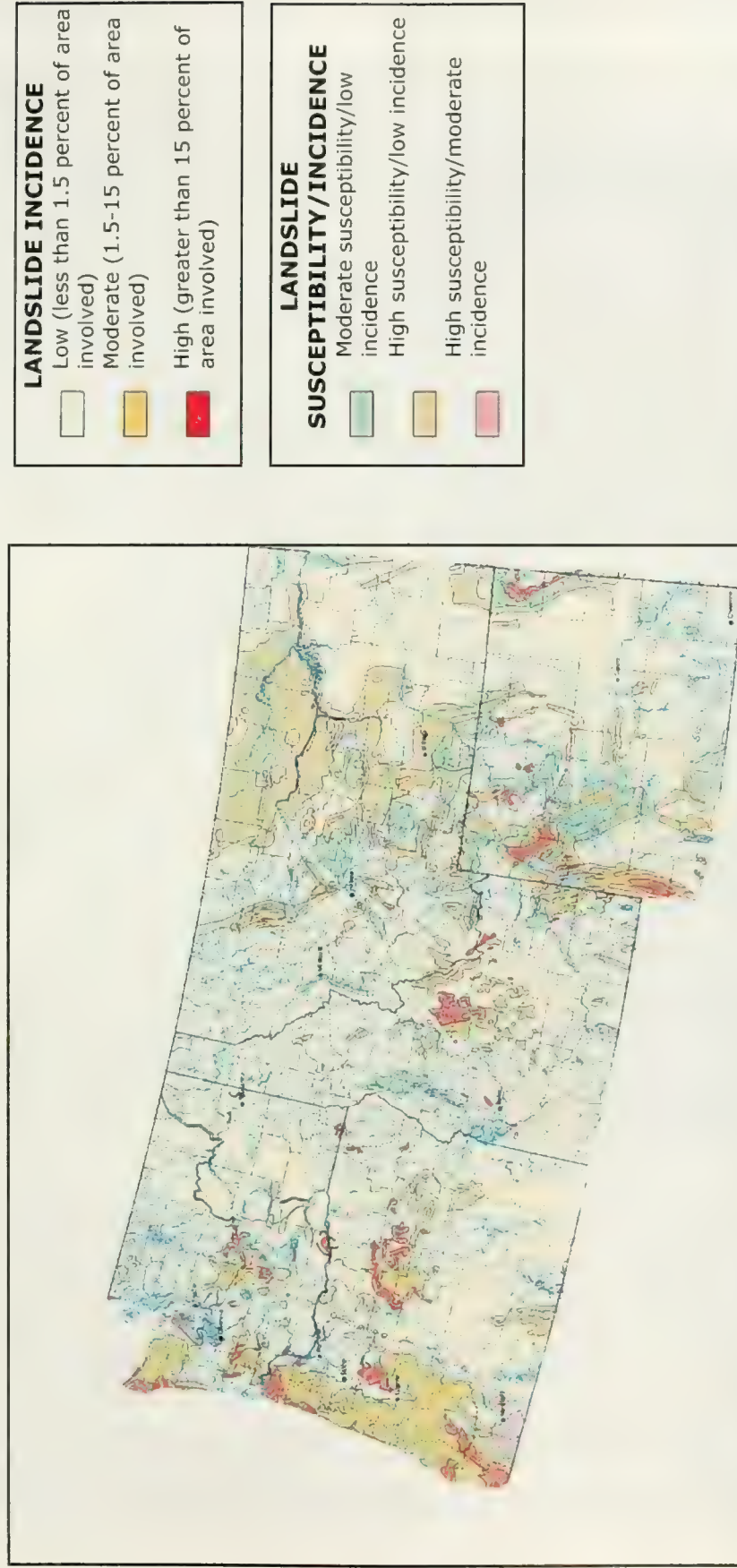
Landslides are among the most common geologic hazards in Montana, causing damage in rural and urban areas of the state. Sudden movements are often spectacular and receive



much publicity. The Hebgen Lake Earthquake of August 18, 1959 triggered the largest landslide in Montana history, where nearly 1.25 miles (2 km) of the Madison River and Montana Highway 287 were buried to depths as great as 394 feet (120 m) (see *Section 3.3.2.2, History of Earthquakes*). However, slower movement can also cause severe problems in developing areas. The effects of the very slow (imperceptible) movements can be seen along many Montana roadways in the form of leaning trees, misaligned fences and walls, and damaged road surfaces and foundations (MBMG, 2002).

Photo 3.5.2-1
Landslide from Hebgen Lake Earthquake, August 1959

Figure 3.3.5-1 Landslide Areas in the Northwest United States



Note: Susceptibility not indicated where same or lower than incidence. Susceptibility to landslide was defined as the probable degree of response of the areal rocks and soils to natural or artificial cutting or loading of slopes, or to anomalously high precipitation. High, moderate, and low susceptibility are delimited by the same percentages used in classifying the incidence of landslide. Some generalization was necessary at this scale, and several small areas of high incidence and susceptibility were slightly exaggerated
Source: Godt, 1997

Whether caused solely by natural processes or aggravated by human activity, when landslides occur in proximity to human-made structures, repairs and remediation can be costly.



For example, a small lobe of a much larger ancient slide south of Dillon was reactivated by removing the toe of the slope. The slide is proving very costly to the railroad and could impact Interstate 15 if a larger segment of the slide area should move (MBMG, 2002). State Highway 2 was built on another slide near Glacier Park and the roadway has had constant subsidence problems. The Goat Lick slide forced the Montana Department of Transportation (MDT) to re-construct the roadway with a cantilevered outside driving lane to prevent further subsidence.

Photo 3.5.2-2 Goat Lick Slide, US Highway 2

A rain-on-snow event in mid-March 2005 caused a mudslide that severely damaged more than 12 miles of U.S. Highway 212 outside Red Lodge, Montana. The road is a crucial link to the western route to Yellowstone Park and is only open to traffic from late-May until mid-October.



An Executive Order was issued declaring an emergency in Carbon County. The order requested assistance from the Federal Highway Administration for the repairs. The \$15.2 million repair involved excavating rock and slide debris, reconstructing the drainage, roadway and new alignment, and constructing tie-back walls. Rock fall fences were also constructed at several locations and overall drainage capacity was increased by creating water diversions along stable locations on the mountain and constructing special inlets to allow rock over 3-inch diameter to pass.

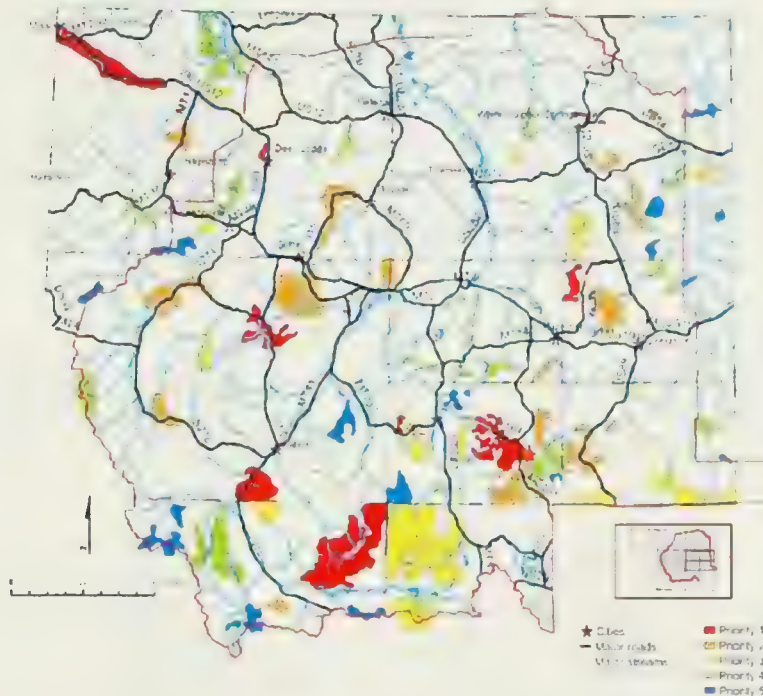
Photo 3.5.2-3 Beartooth Highway Landslide

In Montana, or the nation for that matter, a readily available inventory of landslides and their impacts does not exist. The Montana Bureau of Mines and Geology (MBMG) initially began a statewide compilation of landslide information as part of a hazard assessment project in 1985 and 1986 in cooperation with the U.S. Geological Survey. However, the project was left incomplete and the data unpublished because federal funding for the hazard-assessment program was discontinued. MBMG and MDT did complete an inventory of landslides in the southwestern portion of Montana (MBMG, 2002); however, this inventory identifies priority areas based upon the susceptibility to landslides near state highways. MBMG mapped 4,640 landslides within MDT's District 2, which were categorized as earth landslides (1,922 or 41.5 percent), debris landslides (2,556 or 55 percent), and rock landslides (162 or 3.5 percent). The most important movement types identified were

slides (2,759 or 59.5 percent), followed by flows (1,813 or 39 percent), and composite or compound movement types (54 or 1.2 percent).

MBMG (2002) assigned a priority rating to each area containing clusters or large numbers of landslides (**Figure 3.3.5-2**). They determined that all of District 2 has clustered landslide areas, however, the Ennis 1:100,000-scale quadrangle area is considered overall to have the highest priority.

Figure 3.3.5-2 Priority Landslide Areas in MDT District 2
Source: MBMG, 2002



Landslides appear to have a stronger association with faulting than with any specific geologic unit (MBMG, 2002); however, some geologic formations or lithologies could be identified as being particularly prone to movement:

- Volcanic rocks, or sediments derived from them, are often the originating lithology for landslides. These sediments often contain ash and clay materials that facilitate movement.
- Poorly-consolidated sediments, particularly those of Cretaceous, Tertiary and Quaternary age, appear to have a tendency toward landslide.
- In the Butte and Dillon 1:250,000-scale areas, Proterozoic-age (Precambrian Belt Supergroup) rocks appear to be prone to landslide.

The types of material identified for each slide or flow appears to generally correspond to well-defined topographic settings:

- Earth slides and flows occur most often on more gentle slopes with less vegetation—the foothills and river courses.
- Debris slides and flows generally occur in the steeper, mountainous areas and in areas covered with vegetation.

- Rock slides and flows occur in previously-glaciated high valleys with steep slopes that generally lack vegetative cover, and along other very steep slopes (generally greater than 50 degrees).

3.3.5.3 Declared Disasters from Landslides

One disaster declaration due to a landslide has occurred in Montana. Executive Order No. 08-05, proclaiming an emergency to exist in Carbon County was signed by the governor on May 27, 2005 (MDES, 2007). Flooding and rapid runoff caused landslides at several locations on U.S. Highway 212 (Beartooth Highway) to result in serious and extensive damage to both public and private property, including a federal-aid highway. The Federal Highway Administration reimbursed Montana \$15 million for expenses associated with the highway repair as part of an emergency supplemental appropriations package passed by Congress and signed by President Bush. The Small Business Administration made a declaration to provide assistance to small, non-farm businesses in Big Horn, Carbon, Gallatin, Golden Valley, Meagher, Park, Stillwater, Sweet Grass, and Yellowstone Counties that suffered financial losses as a result of the closure of the Beartooth Highway due to the landslide disaster (SBA Declaration #10130) (US SBA, 2007).

3.3.5.4 Vulnerability to Landslides

3.3.5.4.1 Statewide Vulnerability to Landslides

Vulnerability to landslides is dependent on slope, lithology, and location of current and ancient slides. Activation of landslides depends upon environmental factors, such as amount of rainfall and snowmelt, and human activities, such as road and housing construction.

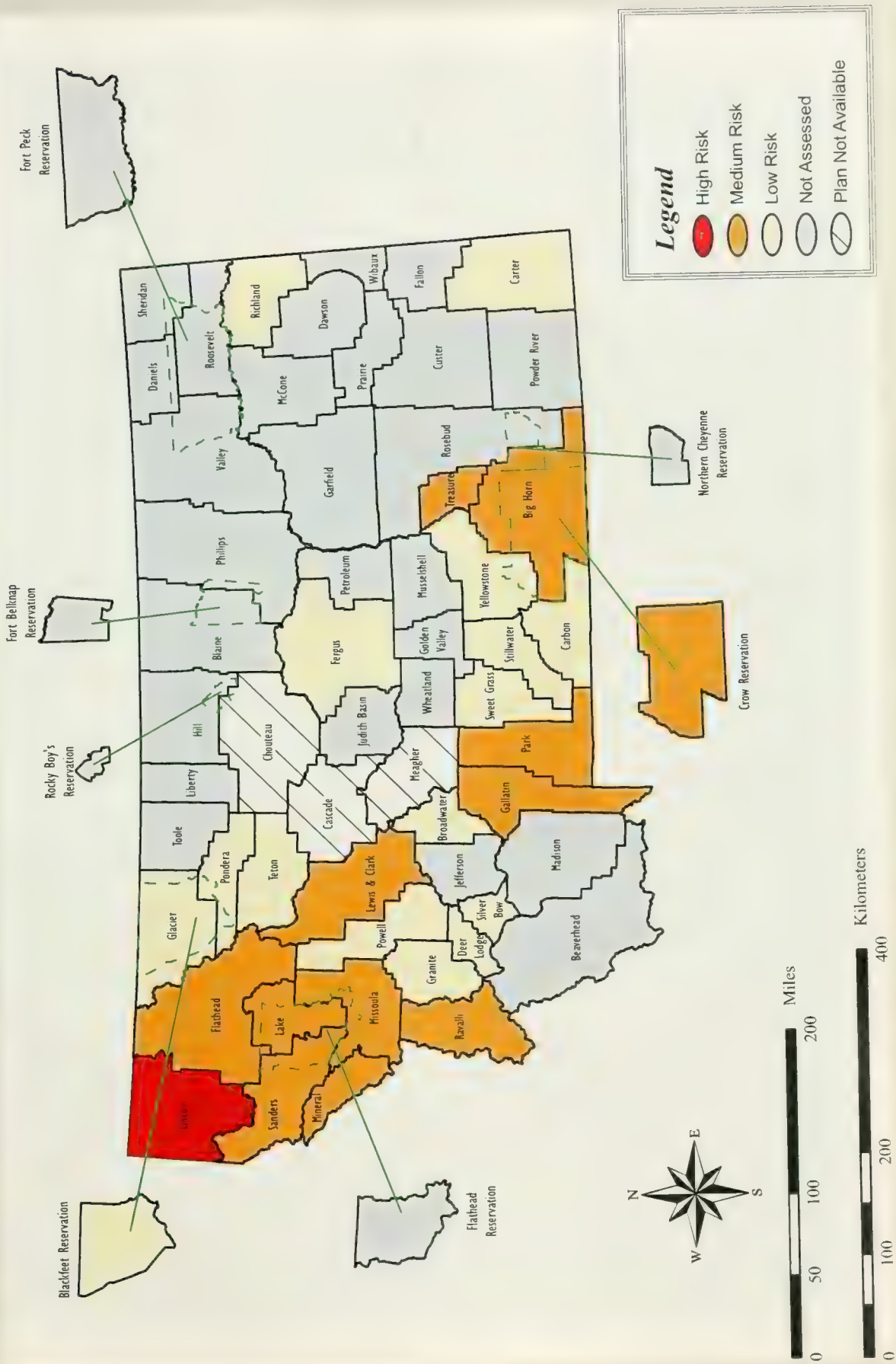
A comprehensive map of existing slide areas throughout the state would greatly improve the capability to prevent development in ancient slides areas, however, many landslides cannot be predicted and can be activated by multiple factors including earthquakes, high precipitation, overgrazing, and deforestation (especially from forest fires). Many, if not most, high-risk areas can be identified on the basis of past landslide activity. Many recent landslides are small, relatively minor events within the boundaries of older, much larger ones. Recognition of the larger framework, as well as mapping current landslide locations, is paramount to understanding the problem.

3.3.5.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.5-3 presents the Landslide Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.5-1 presents a summary of potential loss estimates due to landslides as calculated in the Local PDM Plans. Landslide loss is described in terms of its effect on buildings, society and the economy, where generally:

Figure 3.3.5-3 Hazard Risk Map: Landslide



- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.5-1** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Table 3.3.5-1 Potential Losses from Local Plans: Landslides

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Low	Low	Low	1
1	Flathead County	Low	Low	Low	8
1	Flathead Reservation	NA	NA	NA	
1	Granite County	NA	NA	NA	
1	Lake County	NA	NA	NA	
1	Lincoln County	1	1	NA	9
1	Mineral County	\$500,000-\$1 million	Low	NA	10
1	Missoula County	\$500,000-\$1 million	Low	NA	10
1	Powell County	Low	Low	NA	10
1	Ravalli County	\$500,000-\$1 million	Low	NA	10
1	Sanders County	NA	NA	NA	
1	Silver Bow County	Low	Low	Low	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	NA	NA	NA	
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	NA	NA	NA	
2	Liberty County	NA	NA	NA	
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	NA	NA	NA	
3	Beaverhead County	NA	NA	NA	
3	Broadwater County	Low	Low	Low	1
3	Gallatin County	Low	Low	Low	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Low	Low	Low	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	Low	Low	Low	12
4	Custer County	NA	NA	NA	

Table 3.3.5-1 Potential Losses from Local Plans: Landslides

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
4	Dawson County	NA	NA	NA	
4	Fallon County	NA	NA	NA	
4	Garfield County	NA	NA	NA	
4	McCone County	NA	NA	NA	
4	Powder River County	NA	NA	NA	
4	Prairie County	NA	NA	NA	
4	Richland County	Low	Low	Low	3
4	Wibaux County	NA	NA	NA	
5	Big Horn County	\$390,000	Low	Severe	3
5	Carbon County	\$20,000,000	NA	High	8
5	Crow Reservation	Hundreds of thousands	Moderate	Moderate	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	NA	NA	NA	
5	Rosebud County	NA	NA	NA	
5	Stillwater County	NA	NA	NA	
5	Treasure County	Moderate	Moderate	Moderate	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	NA	NA	NA	
6	Fergus County	NA	NA	NA	
6	Fort Peck Reservation	NA	NA	NA	
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	NA	NA	NA	
6	Roosevelt County	NA	NA	NA	
6	Sheridan County	NA	NA	NA	
6	Valley County	NA	NA	NA	

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to determine potential building, societal, and economic loss.

3.3.5.4.3 Vulnerability of State Property

The ability to assess losses to state-owned buildings and infrastructure are dependent on the ability to map hazard areas and the ability to locate these structure and infrastructures within those zones. Montana does not have comprehensive and reliable landslide incidence mapping completed statewide and the state buildings cannot be geo-referenced. A second approach is to review historic losses and project those losses into the future. Over the past ten years, no insurance claims related to landslide damage have been made for state-owned buildings.

The greatest exposure to state infrastructure may be to roadways. Two of the major slides, the Pipe Organ slide on Interstate 15 and the Goat Lick slide on Highway 2, were discussed previously. Both slides that bury public roads, and those that undermine them, represent significant costs to the state. Although historically, damages to public roads from landslides

have occurred, the Montana Department of Transportation does not maintain a compilation of losses and repairs to roadways as a result of landslides.

The potential losses from landslides to state buildings and infrastructure cannot be estimated quantitatively without detailed mapping. Qualitatively, however, without past disaster declarations from landslides, the impact can be considered low.

3.3.5.5 Impact of Future Development

As urbanization and development increase in Montana, particularly in the mountainous regions, the potential for large losses from landslides also increases. Landslide risk should be evaluated on a case-by-case basis to reduce or eliminate exposure of public infrastructure and private development.

3.3.5.6 Landslide Data Limitations

The major data limitation regarding landslides is the lack of statewide information on existing landslides and landslide-prone areas. The USDA Forest Service has mapped landslide areas on individual National Forests, but this information is not digitally available.

Limitations to State Building Evaluations

To effectively determine vulnerability of State property, data identifying locations of State buildings is necessary. The current PCIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid).

Limitations to MBMG (2002) Study of MDT Region 2

Any use made of the MBMG (2002) data regarding MDT Region 2 should consider the methods of collection and interpretation, and the scale at which the initial data were gathered:

- The original compilation of data was done at 1:250,000 scale; therefore, if the data are used at a larger scale, inaccuracies could occur in both location and shape.
- Locations were originally gathered using several methods: aerial-photo interpretation, literature references, aerial reconnaissance, and field mapping.
- Locations were checked by either fieldwork or aerial reconnaissance, but detailed mapping was not done in either case.
- Data have been provided by several investigators and at various scales, therefore inconsistency in definitions, recognition of types, and locations may exist. More detailed studies in specific areas may require corrections and/or additions to the database.
- The information, location, references, and definitions in the database and in this report are as complete as feasible at this time, but must be considered as products that will continue to evolve as new or improved data become available.
- The accuracy of the landslides located from aerial photographs varies according to date, quality, and scale of the photographs.

3.3.5.7 Landslide References

Federal Emergency Management Agency (FEMA), 1997. Talking about Disaster Guide: Landslide and Debris Flow (Mudslide).

<http://www.fema.gov/pdf/rrr/talkdiz/landslide.pdf>

Godt, Jonathan, 1997. USGS Open-File Report 97-287.

http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html

Montana Bureau of Mines and Geology (MBMG), 2002. Compilation of Landslide Location Maps and Index for Identification of Slide-Prone Areas: A Pilot Study for the Butte District. Authors: Edith M. Wilde, Kenneth L. Sandau, Patrick J. Kennelly, and David A. Lopez. Completed for the Montana Department of Transportation. MBMG 472.

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U.S. Geological Survey (USGS), 2001. Socioeconomic and Environmental Impacts of Landslides in the Western Hemisphere. By Robert L. Schuster and Lynn M. Highland. U.S. Geological Survey Open-File Report 01-0276. <http://pubs.usgs.gov/of/2001/ofr-01-0276/>

U.S. Geological Survey (USGS), 2004. Landslide hazards and fact sheets.

<http://www.usgs.gov/themes/landslid.html>

U.S. Small Business Administration (US SBA), 2007. Disaster Updates by State.

<http://www.sba.gov/gopher/Disnews/>

3.3.6 Terrorism and Violence

Terrorism is defined in the Code of Federal Regulations as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives".

Cyber-terrorism involves computers, networks, and the information they contain. Like other terrorist acts, cyber-terror attacks are typically premeditated, politically motivated, perpetrated by small groups rather than governments, and designed to call attention to a cause, spread fear, or otherwise influence the public and decision-makers.

3.3.6.1 Background

- Bombings have been the most frequently-used terrorist method in the United States. Other possible methods include attacks on transportation routes, utilities, or other public services, or incidents involving chemical or biological agents.
- Before the September 11, 2001 attacks in New York and the Pentagon, most terrorist incidents in the U.S. were bombing attacks, involving detonated and undetonated explosive devices, tear gas, and pipe and fire bombs.
- Terrorists look for visible targets where they can avoid detection before or after an attack such as international airports, large cities, major international events, resorts, and high-profile landmarks.
- The effects of terrorism can vary significantly from loss of life and injuries to property damage and disruptions in services such as electricity, water supply, public transportation, and communications.
- **Cyberterrorism** could involve destroying the actual machinery of the information infrastructure, remotely disrupting the information technology underlying the Internet, government computer networks, or critical civilian systems such as financial networks or mass media, or using computer networks to take over machines that control traffic lights, power plants, or dams. If cyber-terrorists managed to disrupt financial markets or media broadcasts, an attack could undermine confidence or sow panic. Attacks could also involve remotely hijacking control systems, with potentially dire consequences, such as breaching dams, colliding airplanes, shutting down the power grid, and so on.
- Terrorists could try to use **cyber-attacks** to amplify the effect of other attacks. For example, they could try to block emergency communications or cut off electricity or water in the wake of a conventional bombing or a biological, chemical, or radiation attack. Many experts say that this kind of coordinated attack might be the most effective use of cyberterrorism.
- **Biological agents** are infectious microbes or toxins used to produce illness or death in people, animals, or plants. Biological agents can be dispersed as aerosols or airborne particles. Terrorists could use biological agents to contaminate food or water because they are extremely difficult to detect.
- **Chemical agents** kill or incapacitate people, destroy livestock, or ravage crops. Some chemical agents are odorless and tasteless and are difficult to detect. They can have an immediate effect (a few seconds to a few minutes) or a delayed effect (several hours to several days).
- **Biological and chemical weapons** have been used primarily to terrorize an unprotected civilian population and not as a weapon of war. This is because of fear of retaliation and the likelihood that the agent would contaminate the battlefield for a long period of time.
- **Radiological dispersion devices** (RDDs) are a combination of conventional explosives and radioactive material designed to scatter dangerous and sub-lethal amounts of radioactive material over a general area. Terrorist use of RDDs is considered far more

likely than use of a nuclear device because they require very little technical knowledge to build and deploy compared to that of a nuclear device. RDDs also appeal to terrorists because certain radiological materials are used widely in medicine, agriculture, industry and research, and are much more readily available compared to weapons grade uranium or plutonium.

- **Eco-terrorism** is the use or threatened use of violence of a criminal nature against innocent victims or property by an environmentally-oriented, subnational group for environmental-political reasons, or aimed at an audience beyond the target, often of a symbolic nature.
- Montana has 545 miles of international border with Canada. Terrorists typically try to cross into and out of the United States through remote locations. Montana's sparsely populated international border is a potential access point for terrorists moving between countries.
- Local, State, and Federal law enforcement officials monitor suspected terrorist groups and try to prevent or protect against a suspected attack. Additionally, the U.S. government works with other countries to limit the sources of support for terrorism.
- When terrorism strikes, communities may receive assistance from State and Federal agencies operating within the National Incident Management System (NIMS). The Federal Bureau of Investigation (FBI) is the lead Federal agency for crisis management and FEMA is the lead Federal agency for consequence management, including supporting State and local response.

Source: FEMA, 2004b; COFR, 2004; DHS 2003; IBC 2004; FBI, 2002.

3.3.6.2 History of Terrorism and Violence in Montana

Civil unrest, violence and terrorism are not common hazards affecting Montana, but over the short history of Montana, labor strikes have caused economic disruption, threats of terrorism have disrupted community security, and large scale violence has claimed several lives. Montana's sparse population with smaller cities may limit the state as a terrorist target, but the state's rural nature has attracted terrorist and extremist groups as a safe haven. Violent racial, anti-government, and environmental extremist organizations have and continue to exist in Montana. Federal, state, and local law enforcement, however, have thwarted several violent uprisings and plots based in Montana. Some of the incidents involving civil unrest, violence and terrorism in Montana are listed below:

1920 Anaconda Road Massacre: On April 21, 1920, the Anaconda Road Massacre occurred in Butte. Fifteen people were shot during this incident that occurred during an International Workers of the World strike. The US Military was used the following day to curb additional violence. (BSHM, 2004)

Unabomber Attacks: From 1978 to 1995, Ted Kaczynski, commonly known as the Unabomber, killed three people and injured 22 others across the country with mail bombs while he resided in a cabin near Lincoln, Montana.

White Supremacists of the 1990s: The Creativity Movement, formerly known as the World Church of the Creator, a white supremacist group promoting and carrying out violence, held annual meetings in Superior, Montana during the 1990s.

1996 Freeman Crisis: Garfield County made national news during the Montana Freeman Crisis. In the spring of 1996, hundreds of FBI agents surrounded the Ralph Clark ranch complex near Jordan, Montana for a total siege of 81 days. The government alleged that the nearly thirty people inside were of a radical anti-government and racist religious sect who had written bad checks and threatened judges, among other things (Maxim, 2003).

1996 Bomb Threat: Amtrak offices in Philadelphia received notification by phone from a person claiming to have knowledge of a bomb placed on a train headed for western Montana. At that time, the train was 10 minutes out of Wolf Point. The decision was made to evacuate passengers from the train and to allow a search to take place. Once the train was evacuated, it was moved to the east end of town, where it was anticipated that an explosion would cause less property damage. Teams were sent from Great Falls, including a canine search team from Malmstrom and the Explosives Ordinance Disposal team from the Montana Air National Guard. No sign of explosives were found and the train was cleared to continue its journey (Maxim, 2003).

Project Seven 2002-2004: A group called Project Seven in the Flathead Valley was broken up by Montana officials in February 2002 and additional arrests occurred in 2004. This militia organization is alleged to have stockpiled weapons and plotted to kill judges, prosecutors, and police officers in an effort to activate the Montana National Guard and start a war.

3.3.6.3 Declared Disasters and Incidents from Terrorism and Violence

Table 3.3.6-1 Montana Declared Incidents from Terrorism, Civil Unrest and Hostage Situations (1974 – 2006)

Date	Event	Assistance/ Damages
January & Feb. 1979	Montana State Institution Strike. National Guard Activation.	State: \$1,393,714
April 1991	Montana State Institution Strike (EO 03-91). National Guard Activation and assistance statewide.	
August 1995	Tactical Incident (EO 10-95). Prairie County and Town of Terry, activation of National Guard.	State: \$11,042
April 23, 1996	Incident Response (EO 10-96). Anniversary of Waco and Oklahoma City, affecting whole state.	State: \$4,368
April 19, 2000	Incident Response , Lincoln County (EO 9-00). State response to Civil Disobedience Rallies in Lincoln County.	
June 10, 2000	North American Rainbow Gathering , Beaverhead County (EO 15-00). Emergency declaration providing state assistance to Beaverhead County to meet the life threatening situations and imminent threat to the public health and safety.	State: \$77,606; Local: \$23,911
September 11, 2001	Terrorism Threats (EO 23-01). Emergency declaration following terrorist attacks to the World Trade Center and Pentagon.	
September 11, 2001	Terrorism Threats (EO 28-01). Executive Order establishing the Montana Homeland Security Task Force and designating the Disaster and Emergency Services Division as lead agency.	
September 28, 2001	Terrorism Threats (EO 26-01). Executive Order proclaiming support to the President's request for security assistance at Montana Airports. MT National Guard provide personnel for up to 6 months.	
September 2, 2004	Incident Response , (EO 13-04). Executive Order authorizing Incident Response authority in the State of Montana due to an escape of Department of Corrections convict in the City of Helena	
January 11, 2006	Incident Response , (EO 26-2006) Executive Order authorizing Incident Response authority in the State of Montana due to a Department of Corrections prisoner escape from a prison transport vehicle within the City of Helena and Lewis & Clark County.	

Source: MDES, 2007; US SBA, 2004

3.3.6.4 Vulnerability to Terrorism and Violence

3.3.6.4.1 Statewide Vulnerability to Terrorism and Violence

The origins and targets for terrorism and civil unrest are difficult to predict. Individuals or groups that feel oppressed on any issue can resort to violent acts to inflict harm and damage in an attempt to gain publicity or affect policy. The locations of these attacks can occur anywhere but often the symbols that represent a threat to their cause are often times the target. From a historic perspective, these targets have often been government buildings, government officials, and university facilities. Other common targets include medical clinics, businesses, population concentrations, computer mainframes, or critical infrastructure with the ability to cause significant disruption and damage. Civil unrest and riots are typically associated with large public gatherings, initially peaceful protests, controversial political decisions, large strikes, and law enforcement standoffs.

According to the Southern Poverty Law Center, an organization devoted to tracking hate groups in the United States, three hate groups were active in Montana during 2005: the League of the South in Big Fork, a neo-confederate organization, the Aryan Nation Knights of the Ku Klux Klan in Great Falls, and the Church of True Israel in Noxon, a Christian identity organization. Although these organizations did not cause any known violence in Montana during 2005, a future incident cannot be ruled out. Montana also has a long international border with Canada and must be particularly sensitive to the challenges and vulnerabilities associated with it.

Other potential non-structural targets include our population, plants, and animals through bioterrorism. Our state could also be affected by bioterrorism initiated in another location and transmitted to Montana. Terrorists, both domestic and international, will commonly act in unpredictable ways, and therefore all methods of attack cannot be specified. Because of this unpredictability, specific vulnerabilities cannot be determined without disclosing sensitive information.

3.3.6.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.6-1 presents the Terrorism/Violence Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.6-2 presents a summary of potential loss estimates due to terrorism and violence as calculated in the Local PDM Plans. Terrorism and violence loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.6-2** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Figure 3.3.6-1 Hazard Risk Map: Terrorism and Violence

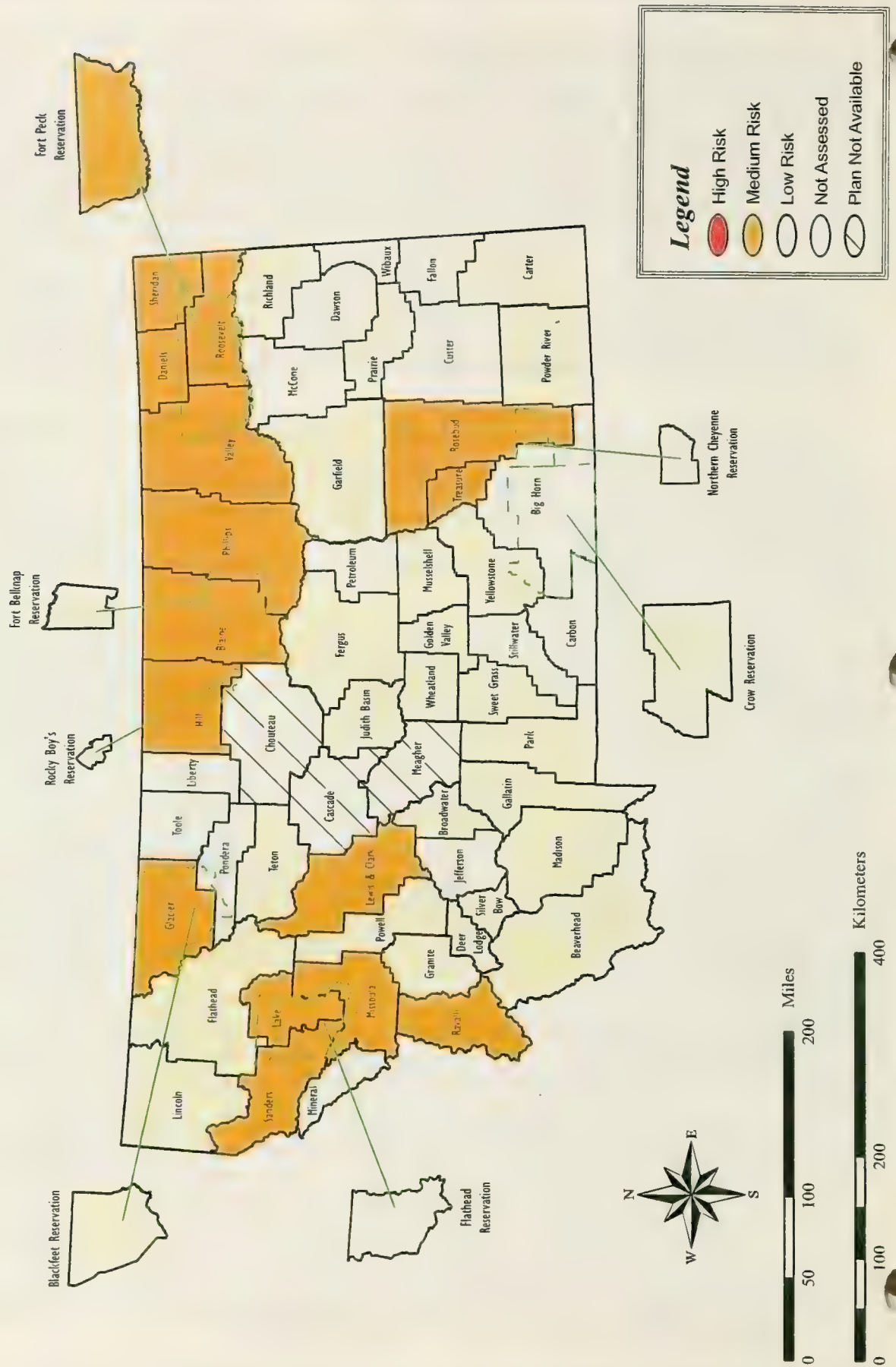


Table 3.3.6-2 Potential Losses from Local Plans: Terrorism and Violence

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Low	High	Moderate	1
1	Flathead County	Low	Moderate	Low	8
1	Flathead Reservation	NA	NA	NA	
1	Granite County	Low	High	Moderate	1
1	Lake County	NA	NA	NA	
1	Lincoln County	4	2	NA	9
1	Mineral County	NA	NA	NA	
1	Missoula County	NA	NA	NA	
1	Powell County	Low	Low	NA	10
1	Ravalli County	NA	NA	NA	
1	Sanders County	NA	NA	NA	
1	Silver Bow County	Low	Moderate	Low	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	NA	NA	NA	
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	NA	NA	NA	
2	Liberty County	NA	NA	NA	
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	NA	NA	NA	
3	Beaverhead County	\$292,900,000	7,553	NA	5
3	Broadwater County	Low	Moderate	Moderate	1
3	Gallatin County	Low	Moderate	Moderate	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Low	Moderate	Moderate	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	Low	Low	Low	12
4	Custer County	NA	NA	NA	
4	Dawson County	NA	NA	NA	
4	Fallon County	NA	NA	NA	
4	Garfield County	Low	Moderate-High	High	1
4	McCone County	NA	NA	NA	
4	Powder River County	Low	Moderate-High	High	1
4	Prairie County	NA	NA	NA	
4	Richland County	NA	NA	NA	
4	Wibaux County	NA	NA	NA	
5	Big Horn County	NA	NA	NA	
5	Carbon County	NA	NA	NA	

Table 3.3.6-2 Potential Losses from Local Plans: Terrorism and Violence

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Crow Reservation	Millions	High	High	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	NA	NA	NA	
5	Rosebud County	Low	High	High	1
5	Stillwater County	NA	NA	NA	
5	Treasure County	Low	High	High	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	NA	NA	NA	
6	Fergus County	NA	7	7	4
6	Fort Peck Reservation	NA	NA	NA	
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	NA	NA	NA	
6	Roosevelt County	NA	NA	NA	
6	Sheridan County	NA	NA	NA	
6	Valley County	NA	NA	NA	

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan.

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

3.3.6.4.3 Vulnerability of State Property

The state building complexes, including the Capitol Complex and the university facilities, could be targets for violence related to civil unrest or terrorist acts because they represent symbols of state government. State government strikes, although historically peaceful, can erupt into violence and vandalism, as witnessed in civil disturbances during the Vietnam War and civil rights protests in the 1960s. Based on the civil unrest that has occurred in the past, it is unlikely there would be widespread damage to state buildings.

3.3.6.5 Impact of Future Development

Future development should have little to no impact on the terrorism or violence threat. Given the goals of eco-terrorists; however, future develop could serve as the basis for an event over controversial development (Gallatin County Hazard Mitigation Plan, 2006).

3.3.6.6 Terrorism and Violence Data Limitations

Most of this analysis was completed from articles and publications discussing civil unrest and terrorism. As is the nature of terrorism and major civil incidences, little specific information on the hazard exists. Facilities would need to be assessed at the site-specific level to determine their vulnerabilities to terrorism and violence. In addition, much of the information needed for a true hazard analysis of the terrorist threat in Montana and the associated vulnerabilities is considered non-public, and therefore, not contained in this document. Sensitive information is needed for an in-depth non-public hazard profile.

3.3.6.7 Terrorism and Violence References

Big Sky Hazard Management (BHM), 2004. Silver Bow County Hazard Mitigation Plan. February 2004.

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Montana Disaster and Emergency Services (MDES), 2007. State of Montana Department of Military Affairs Disaster and Emergency Services Division.

Southern Poverty Law Center (SPLC), 2007, Active US Hate Groups in 2005.

<http://www.splcenter.org/intel/map/hate.jsp>

US Small Business Administration (US SBA), 2004. Disaster Updates by State.

<http://www.sba.gov/gopher/Disnews/>

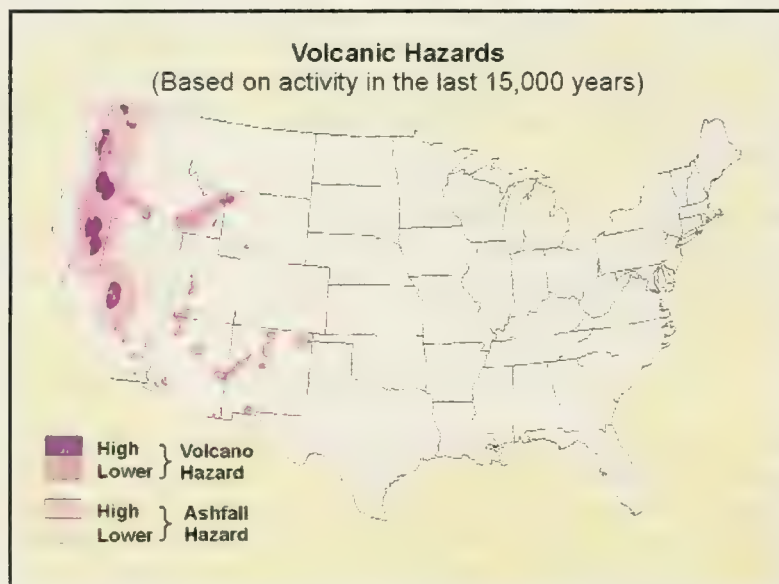
3.3.7 Volcanic Eruptions

Volcanic eruptions are generally not a major concern in Montana due to the relatively low probability (compared with other hazards) of events in any given year. However, Montana is within a region with a significant component of volcanic activity and has experienced the effects of volcanic activity as recently as 1980 (the eruption of Mount St. Helens in the state of Washington).

3.3.7.1 Background

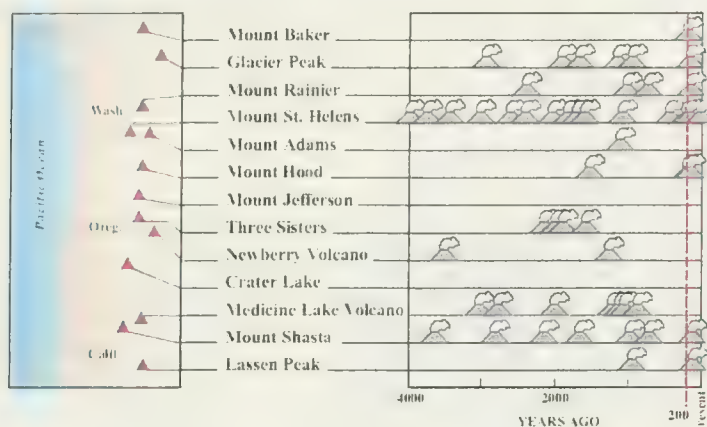
- There are 20 active or potentially-active volcanoes in the United States (**Figure 3.3.7-1**).
- The two volcanic centers affecting Montana in recent geologic time are: 1) the Cascade Range of Washington, Oregon and California; and 2) the Yellowstone Caldera in Wyoming and eastern Idaho.
- Volcanic eruptions in the Cascade Mountains are more likely to impact Montana than Yellowstone eruptions, based on the historic trends of past eruptions (**Figure 3.3.7-2**). The primary effect of the Cascade volcanic eruptions on Montana would be ashfall.
- The distribution of ash from a violent eruption is a function of the weather, particularly wind direction and speed and atmospheric stability, and the duration of the eruption. As the prevailing wind in the mid-latitudes of the northern hemisphere is generally from the west, ash is usually spread eastward from the volcano. Exceptions to this rule do, however, occur.
- Ashfall, because of its potential widespread distribution, offers some significant volcanic hazards.

Figure 3.3.7-1 Volcanic Hazards (based on activity in the last 15,000 years).



Areas in purple show regions at greater or lesser risk of volcanic activity, including lava flows, ashfall, lahar (volcanic mudflows) and debris avalanches, based on the record of the last 15,000 years, as compiled by Mullineaux (1976). Areas in pink show regions at risk of receiving 5 cm or more of ashfall from large or very large explosive eruptions originating at the volcanic centers shown in purple. These projected ashfall extents are based on observed ashfall distribution from a large eruption of Mt. St. Helens that took place 3,400 years ago, and the eruption of Mount Mazama that formed Crater Lake, Oregon, 6,800 years ago.

Figure 3.3.7-2 Cascade Eruptions during the Past 4,000 Years
Source: USGS, 2007



3.3.7.2 History of Volcanic Eruptions Affecting Montana

Table 3.3.7-1 shows the thicknesses of recorded ash deposits within Montana. The most recent ash was deposited in May 1980 after the Mount St. Helens eruption in the state of Washington. **Figure 3.3.7-3** shows the distribution of ash from some of these events. The trajectory of ashfall events is heavily dependent upon the size of the eruption and the prevailing weather and ambient winds.

Table 3.3.7-1 Recent Volcanic Ash Events Affecting Montana

Volcano	Most Recent Eruption (Yrs before Present)	Location Affected	Thickness of Ash in Montana
Yellowstone Caldera	665,000	Eastern Montana	
Glacier Peak	14,500	Western Montana	1.2 inches (compacted)
Crater Lake (Mt. Mazama)	7,600	Western Montana	Up to 6 inches (compacted)
Mount St. Helens	23	Entire State	Up to 0.2 inches (uncompacted)

Source: MDES, 1996; Sarna-Wojcicki and others, 1981; USGS, 2003a; Nimlos, 1981.

Cascade Eruptions

The Cascade Range includes 27 volcanoes, many of which have been active in the last 4,000 years (**Figure 3.3.7-2**). The major threat these volcanoes pose to Montana is ashfall. The likely extent of such ashfall can be estimated on the basis of past eruptions.

After the eruption of Mount St. Helens in May 1980, a coating of up to 5.0 mm (0.2 inches) of ash fell on Western Montana (Sarna-Wojcicki and others, 1981). Ash deposits were thickest in the western portions of the state, tapering to near zero on the eastern part of the state (**Figure 3.3.7-3**). It is estimated that the ashfall cost Missoula County nearly \$6 million in cleanup and lost work time. The statewide cost has been estimated at between \$15 and \$20 million (MDES, 2004).

Travel was restricted in Western Montana for over a week because of concerns for public health, but the ash was determined to be a physical respiratory irritant, but not a toxic substance. The main hazards in Western Montana included reduced visibility (and resulting closed roads and airports), clogging of air filters, and a health risk to children, the elderly,

and people with cardiac or respiratory conditions, such as asthma, chronic bronchitis, and emphysema. Claims for State facilities totaled approximately \$55,000 (MDES, 2004).

Figure 3.3.7-3 Areas of the U.S. Once Covered by Volcanic Ash

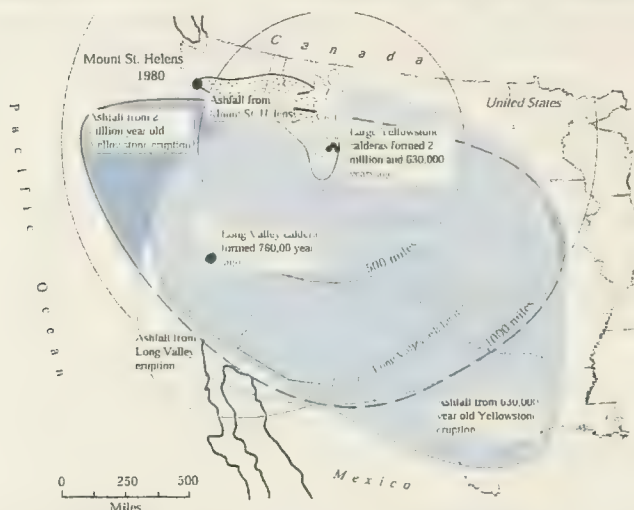
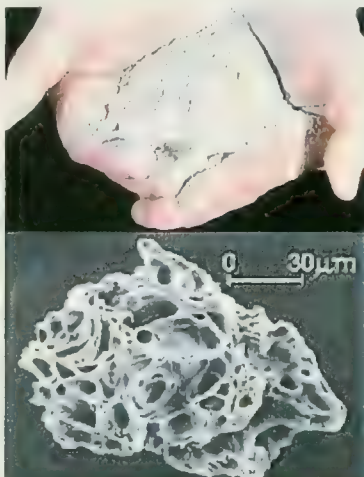


Figure 3.3.7-3 shows distribution of ashfall from Yellowstone's giant eruptions 2 million and 630,000 years ago, compared with ashfall from the 760,000-year-old Long Valley caldera eruptions at Mammoth Lakes, California, and the 1980 eruption of Mount St. Helens, Washington (Adapted from Sarna-Wojcicki, 1991).

The 1980 Mount St. Helens eruption was not a large eruption by world historical standards or even among prior Cascade eruptions. The amount of volcanic material ejected into the air from Mount St. Helens in 1980 (less than one-tenth cubic mile) was only about 1/80th of the volume ejected during the 1815 eruption of the Tambora volcano in Indonesia and less than 1/100th of the estimated ejecta from Mount Mazama during the eruption that formed Crater Lake. Therefore, future eruptions of large Cascade volcanoes, including Mount St. Helens, might be much larger than the May 18, 1980 eruption (Foxworthy and Hill, 1982).

Table 3.3.7-3 describes the effects of volcanic ash.

Table 3.3.7-2 Effects of Volcanic Ash

 <p>Volcanic ash, like this 1980 ash from Mount St. Helens, is made up of tiny jagged particles of rock and glass (photo on bottom; magnified 200 times).</p>	<ul style="list-style-type: none"> • Short-circuits and failure of electronic components, especially high-voltage circuits and transformers (wet ash conducts electricity). • Eruption clouds and ashfall commonly interrupt or prevent telephone and radio communications. • Volcanic ash can cause internal-combustion engines to stall by clogging air filters and also damage the moving parts. Engines of jet aircraft have suddenly failed after flying through clouds of even thinly dispersed ash. • Roads, highways, and airport runways can be made treacherous or impassable because ash is slippery and may reduce visibility to near zero. Cars driving faster than 5 miles per hour on ash-covered roads stir up thick clouds of ash, reducing visibility and causing accidents. • Ash also clogs filters used in air-ventilation systems to the point that airflow often stops completely, causing equipment to overheat. • Crop damage can range from negligible to severe, depending on the thickness of ash, type and maturity of plants, and timing of subsequent rainfall. • Like airborne particles from dust storms, forest fires, and air pollution, volcanic ash poses a health risk, especially to children, the elderly, and people with cardiac or respiratory conditions, such as asthma, chronic bronchitis, and emphysema.
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Source: USGS, 2003b

Yellowstone Eruptions

Another area of volcanic activity that has affected Montana in the past and could pose a serious threat in the future is the Yellowstone Caldera in northwestern Wyoming, just south of the Montana border. A caldera is a term for a large volcanic crater. The Yellowstone Caldera is 45 miles across at its greatest diameter. The spectacular geysers, boiling hot springs, and mud pots that have made Yellowstone famous are surface manifestations of a magma chamber at depth.

Cataclysmic eruptions 2.0, 1.3, and 0.6 million years ago ejected huge volumes of rhyolite magma; each eruption formed a caldera and extensive layers of thick pyroclastic-flow deposits. The caldera is buried by several extensive rhyolite lava flows that erupted between 75,000 and 150,000 years ago. Fortunately for mankind, an eruption comparable in magnitude with those of Yellowstone has not occurred during recorded history. Initial lava flows were confined to the immediate area of the vent, but later flows inundated the headwaters of the Yellowstone River, near Gardiner. Pyroclastic flows (the Huckleberry Ridge Tuff) extended up to 55 miles from the vents.

3.3.7.3 Declared Disasters from Volcanic Eruptions

The 1980 Mount St. Helens eruption covered most of the state with variable amounts of ash. Based on MDES records, Lake County was the only Montana County to apply for state assistance (**Table 3.3.7-3**).

Table 3.3.7-3 State Declarations for Volcanic Hazards

Date	Pa. No.	Applicant	State	Local	Comments
1980	ST-80-1	Lake County	\$ 8,320	\$47,102	Volcanic Ash Fallout (Mt. St. Helens) & Flooding

3.3.7.4 Vulnerability to Volcanic Eruptions

3.3.7.4.1 Statewide Vulnerability to Volcanic Eruptions

The US Geological Survey has determined that two areas in Montana may have exposure to volcanic hazards:

1. The extreme western edge of Montana (Lincoln, Sanders, and Mineral Counties) could be subject to ashfall of 5 mm or greater from eruptions of the Cascade Volcanoes.
2. The southwestern corner of the state (portions of Madison and Gallatin Counties) could be subject to ash flows, lava flows, and lahars (ash/mudflows) from a Yellowstone eruption.

The primary hazard to which the State may be vulnerable at some future time, is ashfall from a Cascade volcano. Eruptions in the Cascades have occurred at an average rate of 1-2 per century during the last 4,000 years, and future eruptions are certain. Seven volcanoes in the Cascades have erupted in the last 200 years. The next eruption in the Cascades could affect hundreds of thousands of people. The effect in Montana would depend on the interaction of such variables as source location, frequency, magnitude and duration of eruptions, the nature of the ejected material and the weather conditions. Therefore, the entire state may be considered vulnerable to ashfall to some degree in the event of a volcanic eruption.

The USGS assessment reflects a "recent" record of volcanic activity within the last 15,000 years. There is evidence that ashfall from a Yellowstone eruption could impact a far greater area and have significant impact on the southern half of Montana. Three major periods of activity in the Yellowstone system have occurred at intervals of approximately 600,000 years, and the most recent was about 600,000 years ago. The evidence available is not sufficient to confirm that calderas such as the one in Yellowstone erupt at regular intervals, so the amount of time elapsed is not necessarily a valid indicator of imminent activity. There is no doubt, however, that a large body of molten magma exists, probably less than a mile beneath the surface of Yellowstone National Park. The presence of this body has been detected by scientists who discovered that earthquake waves passing beneath the park behave as if passing through a liquid. The only liquid at that location that could absorb those waves is molten rock. The extremely high temperatures of some of the hot springs in the park further suggest the existence of molten rock at shallow depth. A small upward movement in the magma could easily cause this magma to erupt at the surface. If a major eruption occurred, the explosion would be "comparable to what we might expect if a major nuclear arsenal were to explode all at once, in one place" (Alt and Hyndman, 1986).

Although the probability is minimal, there is the potential for a catastrophic eruption in the vicinity of Yellowstone National Park that would have very serious consequences for Montana and neighboring states. Again, assessing the vulnerability of the State to such an event is impossible due to the numerous variables and uncertainties that must be considered.

3.3.7.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.7-4 presents the Volcanic Eruption Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.7-4 presents a summary of potential loss estimates due to volcanic eruption as calculated in the Local PDM Plans. Volcanic eruption loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.7-4** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Figure 3.3.7-4 Hazard Risk Map: Volcanic Eruption

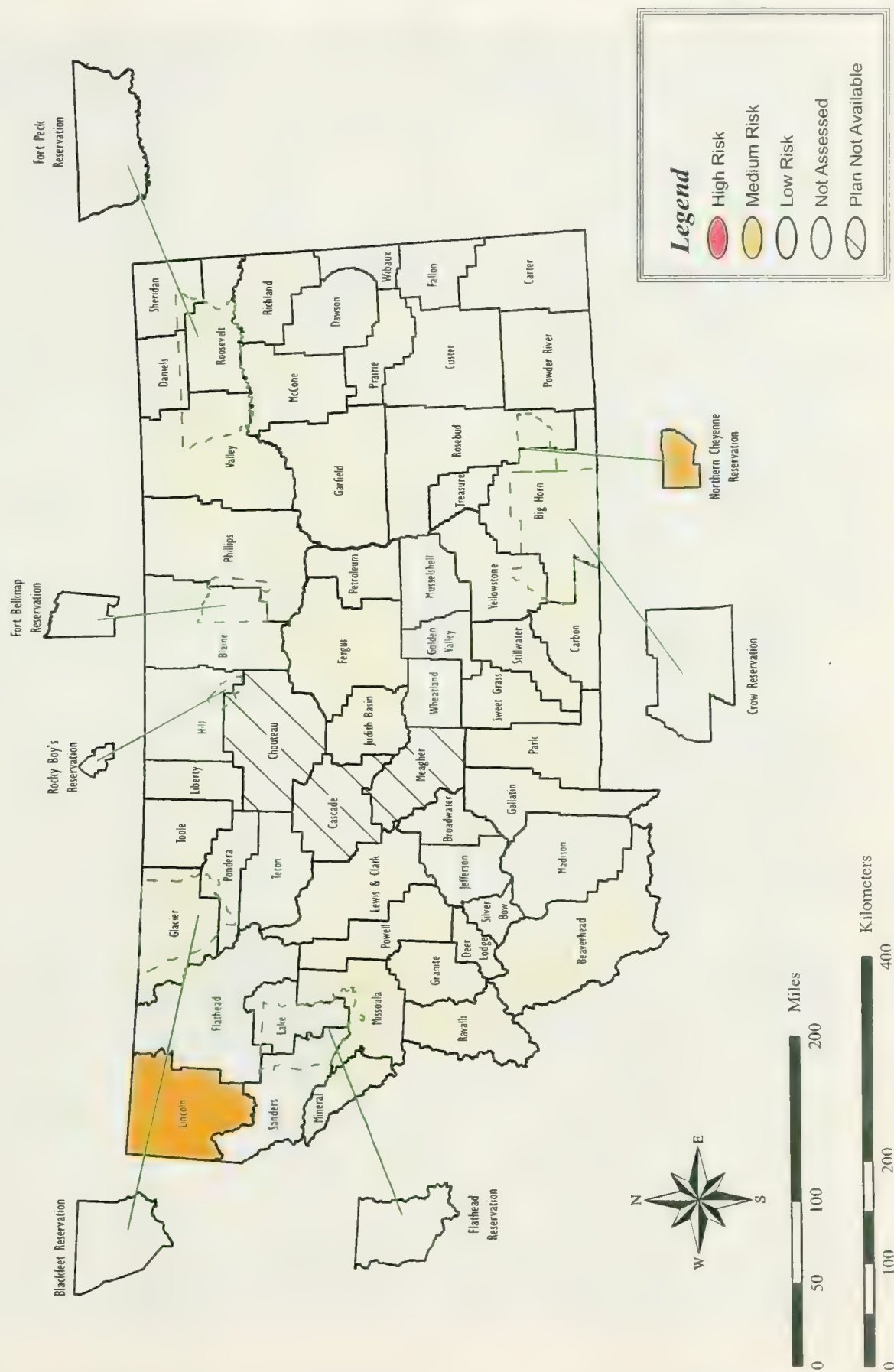


Table 3.3.7-4 Potential Losses from Local Plans: Volcanic Eruption

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Moderate	Moderate	Low	1
1	Flathead County	NA	NA	NA	
1	Flathead Reservation	NA	NA	NA	
1	Granite County	NA	NA	NA	
1	Lake County	NA	NA	NA	
1	Lincoln County	NA	NA	NA	
1	Mineral County	\$200,00-\$500,000	Low	NA	10
1	Missoula County	\$1-\$2 million	Low	NA	10
1	Powell County	Low	Low	NA	10
1	Ravalli County	\$1 million	Low	NA	10
1	Sanders County	NA	NA	NA	
1	Silver Bow County	Low	Low	Low	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	NA	NA	NA	
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	NA	NA	NA	
2	Liberty County	Low	Low	Low	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	High	High	NA	11
3	Beaverhead County	NA	NA	NA	
3	Broadwater County	Moderate	Low	Low	1
3	Gallatin County	Moderate	Moderate	Moderate	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Moderate	Moderate	Moderate	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	NA	NA	NA	
4	Custer County	NA	NA	NA	
4	Dawson County	NA	NA	NA	
4	Fallon County	NA	NA	NA	
4	Garfield County	Low-Moderate	Low	Low-Moderate	1
4	McCone County	Low	Low	Moderate	3
4	Powder River County	Low	Low	Low	1
4	Prairie County	Millions	NA	NA	3
4	Richland County	Millions	NA	NA	3
4	Wibaux County	NA	NA	NA	
5	Big Horn County	\$6,000,000	NA	Severe	3
5	Carbon County	NA	NA	NA	

Table 3.3.7-4 Potential Losses from Local Plans: Volcanic Eruption

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Crow Reservation	\$6,000,000	Moderate-High	Moderate-High	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	NA	NA	\$6 million	3
5	Rosebud County	Moderate	Low	Moderate	1
5	Stillwater County	NA	NA	NA	
5	Treasure County	Moderate	Low	Moderate	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	NA	NA	NA	
6	Fergus County	NA	2	4	4
6	Fort Peck Reservation	NA	NA	NA	
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	NA	NA	NA	
6	Roosevelt County	NA	NA	NA	
6	Sheridan County	NA	NA	NA	
6	Valley County	NA	NA	NA	

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

3.3.7.4.3 Vulnerability of State Property

Exposure to State-owned facilities can be classified into two types of events: a Yellowstone eruption causing ash flows and tefra fallout impacting the immediate area, and ashfalls from either a Yellowstone eruption or a Cascade Volcano eruption blanketing portions of the state. The most likely event would be a Cascade volcano eruption causing ashfall in the western portion of the state. An ashfall event could cause equipment failure to the State's motor-pool and other motorized equipment. Clearing the ashfall from the State's highways would cause extra resources devoted to the clean up. The overall impact to the State-owned facilities would be minor.

A Yellowstone eruption could be devastating. While the immediate area would have the greatest exposure to ash flows, tefra fallout, and mudflows, heavy ashfall could have severe impacts on areas within 100 miles of the eruption. The counties with greatest vulnerability are those that are located within 100 miles of Yellowstone Park. Those counties and the value of State-owned facilities are shown in **Table 3.3.7-5**.

Table 3.3.7-5 State Building Values in Counties Highly Vulnerable to Yellowstone Eruption

County	Building Value	Contents Value	Total Value	State Employee Count
Gallatin	\$628,106,416	\$313,624,692	\$941,731,108	407
Madison	\$12,293,758	\$562,960	\$12,856,718	63
Broadwater	\$13,193,938	\$9,366,472	\$22,560,410	130
Park	\$3,102,043	\$935,509	\$4,037,552	79
Jefferson	\$23,951,910	\$5,890,780	\$29,842,690	759
Carbon	\$1,149,030	\$446,856	\$1,595,886	56
Stillwater	\$497,276	\$138,322	\$635,598	36
TOTALS	\$682,294,371	\$330,965,591	\$1,013,259,962	1,530

Source: DOA, Risk Management and Tort Defense Division, 2007

3.3.7.5 Impact of Future Development

As population increases in the west and southwest Montana and recreational usage is expanding, more and more people and property are at risk from ashfall associated with volcanic activity.

3.3.7.6 Volcanic Eruptions Data Limitations

To effectively determine the vulnerability of State property, data identifying locations of State buildings is necessary. The current Montana Department of Administration (DOA), Risk Management and Tort Defense PCIIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zipcode centroid). Volcanic eruptions are somewhat unpredictable events, and the ashfall is highly dependent on weather parameters. Generally, Western and Southwestern Montana is considered more vulnerable than other parts of state given their proximity to volcanic areas, however, the data limitations of weather and the science of volcanoes and related effects do not allow for more specific analysis.

3.3.7.7 Volcanic Eruption References

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3.3.8 Weather - Winter Storms and Avalanche

3.3.8.1 Background

Winter storm hazards present one of the greatest threats to life of any hazard in Montana. Statistics on winter deaths are difficult to obtain, but nationwide there are on average 100 lives directly and indirectly lost to winter weather, more than lightning, hurricanes, or tornadoes. Winter storms are considered to be deceptive killers because most deaths are indirectly related to the storm. People die in traffic accidents on snow- or ice-covered roads, from hypothermia due to prolonged exposure to cold, and from heart attacks due to overexertion. About 70 percent of the winter storm-related deaths in the U.S. occur from people leaving motor vehicles and nearly 25 percent are from exposure to snow and cold during outdoor activities such as snow shoveling (NOAA, 2001).

Most Montana residents are readily prepared for snow storms each winter. Every community receives snow on an annual basis, so residents expect measurable snow several times each winter. Cold temperatures into the negative numbers are also common throughout the winter months. Major problems typically only occur during record snowfalls and extended periods of below zero temperatures. Rapid snowfall can overwhelm the plowing resources, making roadways impassable, and severely reduce visibility. Particularly heavy snows, early or late season snows, and ice events can damage infrastructure such as power lines, and block roads or damage structures with downed trees. Extended cold periods, especially when coupled with strong winds, can create dangerous situations for those outdoors or those without heat, such as in the case of a utility disruption.

Unlike tornadoes and severe thunderstorms, winter storms are generally slow in developing, often taking one to three days to mature. This does not in any way diminish their importance, nor their potential for causing loss of life and destruction. What it does mean is that the National Weather Service (NWS) is often able to provide advance notice of winter storms, in some cases, lead times of one to two days.

Photo 3.3.8-1
A deputy Sheriff Directs Traffic around a Crash in a Blizzard along U.S. Highway 2 near Columbia Falls on January 27, 2004. Heavy snow to the east near Essex triggered avalanches that knocked off cars on a freight train (Robin Loznak/The Daily Inter Lake – NWS, 2004).



A **blizzard** is a storm that has winds of at least 35 MPH with snow and blowing snow reducing visibility to near zero. Blizzards and other severe weather are common in Montana.

Some of the Montana winter weather statistics are listed below:

- The coldest time of the day in Montana usually occurs one hour after sunrise.
- Winter weather conditions can change very quickly in Montana. For example:
 - The greatest temperature change in 24 hours occurred in Loma on January 14-15, 1972. The temperature rose 103 degrees, from 54 degrees below zero to 49 degrees above zero. This is the world record for a 24-hour temperature change.
 - Great Falls went from -32°F to +15°F in 7 minutes, a national record.
- The coldest temperature ever recorded in Montana was -70°F at Rogers Pass north of Helena, on January 20, 1954. This is also a national record for the lower 48 states.
- Considering average daily low temperatures in January, the five coldest places (with weather recording stations) in Montana are:
 - Westby, Sheridan County, -5.8°F.
 - 10 miles north of Opheim, Valley County, -3.3°F.
 - 12 miles southeast of Opheim, Valley County, -2.9°F.
 - Redstone, Sheridan County, -2.7°F.
 - Culbertson, Roosevelt County, -2.0°F.
- The greatest recorded 24 hour snowfall of 48 inches occurred in May 1982, 7 miles south of Shonkin, Choteau County.
- During the winter of 1964-1965, Kings Hill totaled 426 inches of snow.

Source: NWS, 2004

Avalanche: A mass of loosened snow, ice, and/or earth suddenly and swiftly sliding down a mountain. In practice, assumed to be a snow avalanche unless another term such as ice, rock, mud, etc is used. Synonymous with "*snow slide*".

Avalanches occur throughout the mountains of Montana and, to a limited extent, elsewhere in the state. Avalanche hazards most-directly threaten winter recreationists, homes and businesses in mountainous regions, and communication and transportation networks. Two of Montana's ski areas, Bridger Bowl and Big Sky, are respectively the second and fourth most avalanche-prone ski resorts in the entire United States.

Of the major avalanche hazards, the interruption of communications lines probably occurs most frequently. Places of highest hazard include ski areas, mountain passes, and other areas where transmission lines cross avalanche paths. In regions where important highways or railroads cross areas subject to frequent snow slides, losses resulting from blocked roads, buried railroad tracks, and destroyed bridges can reach into the millions of dollars.

The complex interaction of weather and terrain factors contributes to the location, size, and timing of avalanches. In the absence of detailed scientific observation, any accumulation of snow on a slope steeper than 20 degrees should be considered a potential avalanche hazard.

The most certain sign of avalanche hazard is avalanche activity. Usually when one slope is hazardous, many of the nearby slopes are also hazardous. The historical record shows numerous cases where rescue parties searching for avalanche victims themselves become victims of the same avalanche cycle.

3.3.8.2 History of Winter Storms and Avalanches in Montana

Severe winter storms are one of Montana's greatest hazards. Winter storms may be categorized as ice storms, heavy snowfall, or blizzards. These storms vary in size and intensity and may affect a small part of the state or several states at once. Aside from the initial consequences, such as threats to vulnerable populations, freezing pipes, and snow removal costs, there are many residual effects, such as agricultural considerations and potential flooding concerns.

Photo 3.3.8-2
Highway 191 Near Malta,
December 28, 2003. The highway
was closed for several days
following the record snowfalls in
northeastern Montana. Many
drivers were stranded during the
storm that created this snow drift
(NWS, 2004).



Winter storms impact the entire state annually. In February 1996, unusually cold temperatures covered most of the state, but communities in the northeast portion were exposed to life-threatening wind chills. The cold temperatures ruptured a natural gas line in Chouteau, compounding the life-threatening situation further. Later that year in November and December 1996, heavy snowfall and freezing rain caused power outages in western Montana and collapsed numerous buildings in the northwestern portion of the state.

Eastern Montana suffered an ice storm and blizzard in November 2000. The storm knocked out power to many homes and businesses from Plentywood to Ekalaka. Some locations did not have power restored for several weeks. Total estimated damages were \$3 million. The storm was a federally declared disaster.

A major late season winter storm affected much of the Rocky Mountain Front in June 2002. Heavy snow fell for three days with snow accumulations ranging from 3 to 4 feet over the valleys, to 5 to 7 feet above 5,000 feet. This snow had a very high moisture content, which caused 301 power poles to break, 232 power pole cross arms to snap off, 521 splices, and over 30 miles of destroyed power lines. The power was out to over 2,500 customers, some for several days. Roads were closed over the entire Rocky Mountain Front region for 2 days. The deep snow cover resulted in the loss of over 3,200 livestock. Property damage was estimated at \$3.2 million. The storm was a federally declared disaster for flooding (see *Section 3.3.3, Table 3.3.3-3*).

Since 1993, NOAA's National Climatic Data Center has recorded property damages or fatalities in Montana related to winter storms in every year except 1999 (NOAA-NCDC, 2007). During this time, 14 deaths and over \$28 million in property damage has been documented (**Table 3.3.8-1**). On average, these storms cause approximately \$2 million in property damages and 1 fatality each year (NOAA-NCDC, 2007). Because winter storms are

a frequent occurrence in Montana, much of the property damage and injuries/fatalities associated with winter weather may be under reported.

Table 3.3.8-1 Summary of Winter Storm Losses in Montana (1993-2006)

Type	Dates	Death	Injuries	Property Damage
Snow and Ice Events with Property Damage and/or Fatalities	1993-2006	14	23	\$28,028,000

Source: NOAA-NCDC, 2007

Another cause of winter storm related fatalities are avalanches. From 1985 to 2003, there were 41 avalanche fatalities in Montana, representing more than 10 percent of the nationwide avalanche related deaths (**Figure 3.3.8-1**) (CAIC, 2007). Most of these fatalities were recreationists such as skiers, snowboarders, snowmobilers and climbers. In 2006 alone, Montana had 6 fatalities due to avalanches, representing 30 percent of the nationwide total for that year (CAIC, 2007). **Table 3.3.8-2** presents a summary of the recent avalanches.

Figure 3.3.8-1 U.S. Avalanche Fatalities by State

Source: CAIC, 2007

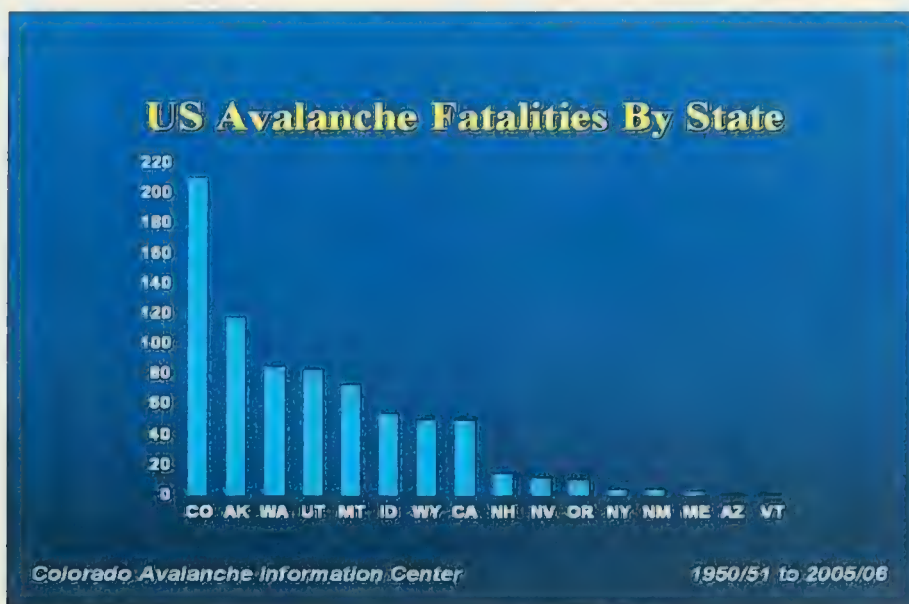


Table 3.3.8-2 Summary of Avalanches in Montana: 2006-2007

Date	Location	Activity	Fatalities	Injuries
12/16/2006	Scotch Bonnet Mountain near Cooke City	Snowmobiling	1	0
12/28/2006	Lionhead area near West Yellowstone	Snowmobiling	1	1
1/1/2007	Mt. Jefferson, Centennial Range	Snowmobiling	1	1
2/17/2007	Big Belt Mountains, northeast of Townsend	Snowmobiling	2	0
3/3/2007	Yellow Mountain near Big Sky	Skiing	1	0

Source: CAIC, 2007; GNFAC, 2007

3.3.8.3 Declared Disasters from Winter Storms and Avalanches

Numerous winter storm disasters have been declared in Montana. **Table 3.3.8-3** summarizes disaster declarations from 1974 to 2006 and **Table 3.3.8-4** presents the disaster assistance granted to individual jurisdictions.

Table 3.3.8-3 Federal Winter Storm Disaster Declarations in Montana (1974 to 2006)

Date	Disaster No.	Type of Event	Areas Declared	Public Assistance (\$)		
			Counties and Reservations	Federal	State	Local
November 2000	FEMA-1350-DR-MT	Winter Storm	Carter, Daniels, Dawson, Fallon, Richland, Roosevelt Sheridan, Wibaux	\$2,049,746	\$2,229	\$681,019
April 2001	FEMA-1377-DR-MT	Winter Storm	Big Horn, Flathead, Lake, Yellowstone & Crow Reservation	\$705,644	\$439	\$234,776
June 2001	FEMA-1385-DR-MT	Winter Storm	Gallatin, Missoula & Powell	\$922,154	\$18,938	\$288,447
June 2002	FEMA-1424-DR-MT	Winter Storm	Glacier, Toole, Liberty, Hill, Pondera & Blackfeet Reservation	\$1,361,886	\$23,885	\$430,077
TOTALS				\$5,039,430	\$45,491	\$1,634,319

Source: MDES, 2007

Table 3.3.8-4 State Declared Winter Storm Disasters and Assistance in Montana

Year	PA or EO No.	Applicant	State	Local
1978	ST-78-1	Blaine County	\$117,620	\$23,714
1978	ST-78-2	City of Havre	\$19,495	\$18,200
1978	ST-78-3	Phillips County	\$121,075	\$22,085
1978	ST-78-4	Carter County	\$76,008	\$14,135
1978	ST-78-5	Valley County	\$22,349	\$29,681
1978	ST-78-6	Dawson County	\$31,524	\$27,508
1978	ST-78-7	Garfield County	\$114,937	\$41,484
1978	ST-78-8	Wibaux County	\$47,990	\$18,728
1978	ST-78-9	McCone County	\$14,944	\$19,117
1978	ST-78-10	City of Wolf Point	\$10,231	\$5,040
1979	ST-79-1	Judith Basin County	\$201,825	\$17,320
1979	ST-79-2	Sweet Grass County	\$34,145	\$10,174
1979	ST-79-3	Teton County	\$247,818	\$24,210
1979	ST-79-4	Golden Valley County	\$66,693	\$7,746
1979	ST-79-5	Carter County	\$95,672	\$13,370
1979	ST-79-6	Garfield County	\$88,387	\$13,800
1979	ST-79-7	McCone County	\$15,790	\$21,680
1979	ST-79-8	Wibaux County	\$39,559	\$15,650
1979	ST-79-9	Dawson County	\$75,947	\$20,949
1985	MT-85-1	Town of Neihart	\$12,542	\$243
1990	MT-2-90	Town of Browning	\$2,493	\$806
1996	EO2-96	Teton County	\$2,288	\$0
1996	EO29-96	Glacier County, Town of Browning,	\$35,521	\$0

Table 3.3.8-4 State Declared Winter Storm Disasters and Assistance in Montana

Year	PA or EO No.	Applicant	State	Local
		Blackfeet Reservation		
1996	EO30-96	City of Libby	\$74,645	\$0
2004	EO 8-04	Petroleum County	\$11,282	\$2,936
2004	EO 8-04	Daniels County	\$22,504	\$9,373
2004	EO 8-04	Garfield County	\$31,389	\$0
2004	EO 8-04	Richland County	\$45,162	\$22,294
2004	EO 8-04	Roosevelt County	\$46,392	\$43,444
2004	EO 8-04	Sheridan County	\$26,239	\$12,575
2004	EO 8-04	12 Cities & Towns	\$66,713	\$19,619
2005	MT-06-05	City of Glendive	\$26,242	\$0
TOTALS			\$1,845,421	\$475,881

Source: MDES, 2007

3.3.8.4 Vulnerability to Winter Storms and Avalanches

3.3.8.4.1 Statewide Vulnerability to Winter Storms and Avalanches

The entire state is considered vulnerable to affects from heavy snowfall and subzero temperatures from winter storms. The winter weather patterns dictate exposure to the severest winter weather. Arctic cold fronts typically enter the state from the northeast and may cross the Continental Divide, affecting the western portion of the state. Arctic fronts meeting wet maritime fronts often combine to cause heavy snowfall, which can occur in all parts of the state. The lowest temperatures are typically experienced in the northeast, whereas the heaviest snowfall most often occurs in the mountain regions. Exposure does not equate to vulnerability, as preparedness and awareness in the most exposed portions of the state reduce vulnerability. For those reasons, the entire state is considered equally vulnerable to affects from winter storms.

The avalanche hazard is more localized in mountain regions. Avalanche-prone areas are well known; avalanche chutes identify where they will likely occur again. Where communities have built or developments have encroached into steep mountainous terrain, the vulnerability increases. Most of the exposure to the population is in winter recreation areas.

3.3.8.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.8-2 presents the Winter Storm Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Figure 3.3.8-2 Hazard Risk Map: Winter Storm

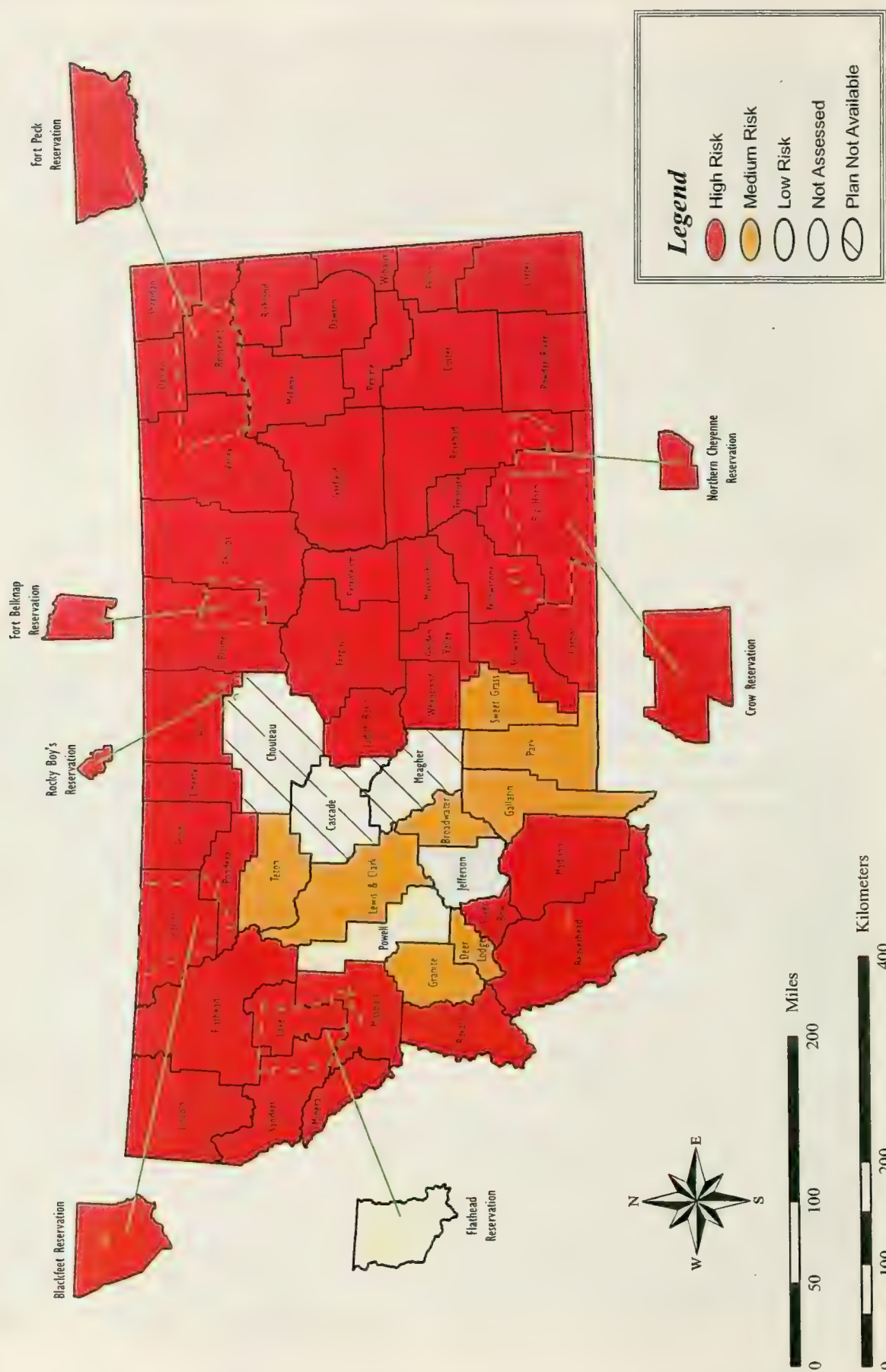


Table 3.3.8-5 presents a summary of potential loss estimates due to winter storms and/or avalanches as calculated in the Local PDM Plans. Winter storm/avalanche loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.8-5** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Table 3.3.8-5 Potential Losses from Local Plans: Winter Storms

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Low	High	Moderate	1
1	Flathead County	Low	High	Moderate	8
1	Flathead Reservation	\$41,591,600	1,343	NA	2
1	Granite County	Low	High	Moderate	1
1	Lake County	\$41,591,600	1,343	NA	2
1	Lincoln County	1	1	NA	9
1	Mineral County	\$500,000-\$1 million	Moderate	NA	10
1	Missoula County	\$500,000-\$1 million	High	NA	10
1	Powell County	Low	Medium	NA	10
1	Ravalli County	\$500,000-\$1 million	Moderate	NA	10
1	Sanders County	\$9,915,261	\$280	NA	2
1	Silver Bow County	Low	High	Moderate	1
2	Blackfeet Reservation	\$16,355,504	444.10	NA	2
2	Blaine County	\$6,392,196	126.20	NA	2
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	\$2,168,150	48.70	NA	2
2	Glacier County	NA	NA	NA	
2	Hill County	\$18,687,040	333.50	NA	2
2	Liberty County	Medium	High	NA	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	\$2,685,836	76.90	NA	2
2	Teton County	NA	NA	NA	
2	Toole County	Low-Medium	Low	NA	11
3	Beaverhead County	\$18,500,000	477.60	NA	5
3	Broadwater County	Low	Moderate	Moderate	1
3	Gallatin County	Low	High	Moderate	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Low	High	Moderate	1

Table 3.3.8-5 Potential Losses from Local Plans: Winter Storms

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
3	Sweet Grass County	NA	NA	NA	
4	Carter County	High	High	High	12
4	Custer County	Moderate	Moderate	NA	13
4	Dawson County	\$3,400,000	NA	High	8
4	Fallon County	NA	NA	\$1 million	8
4	Garfield County	Moderate	High	Moderate	1
4	McCone County	\$600,000	Moderate	\$1,000,000	3
4	Powder River County	Moderate-High	High	Moderate	1
4	Prairie County	NA	NA	\$1,000,000	3
4	Richland County	\$600,000	Moderate	\$238,095	3
4	Wibaux County	\$3,300,000	Moderate	Thousands	3
5	Big Horn County	\$800,000	Moderate-Severe	Moderate-Severe	3
5	Carbon County	\$667,250	NA	\$60,000	8
5	Crow Reservation	\$800,000	Moderate-High	Moderate-High	3
5	Golden Valley County	\$624,478	11.67	NA	2
5	Musselshell County	\$8,185,501	146.60	NA	2
5	Northern Cheyenne Reservation	Millions	Moderate	Millions	3
5	Rosebud County	Moderate	High	Moderate	1
5	Stillwater County	\$9,300,000	NA	NA	8
5	Treasure County	Moderate	High	High	1
5	Wheatland County	\$4,934,643	67	NA	2
5	Yellowstone County	NA	NA	NA	
6	Daniels County	\$5,353,554	77.50	NA	2
6	Fergus County	NA	7	5	4
6	Fort Peck Reservation	\$19,090,684	478	NA	2
6	Judith Basin County	\$3,348,000	52.40	NA	2
6	Petroleum County	NA	NA	NA	
6	Phillips County	\$9,346,717	142.60	NA	2
6	Roosevelt County	\$19,166,760	503.10	NA	2
6	Sheridan County	\$10,880,198	160.30	NA	2
6	Valley County	\$25,162,016	346.80	NA	2

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

3.3.8.4.3 Vulnerability of State Property

State property that may be vulnerable to winter storms includes property which may be flooded by frozen water pipes, or collapsed due to heavy snow loads. Unprotected water lines or water lines above frost lines in the ground could expose buildings to potential flood damage. The same applies to building structures that may not be structurally sound to withstand high snow loads. Inventories of potentially-exposed buildings that may have unprotected water lines or insufficient structural integrity were not found.

Table 3.3.8-6 shows the claims for losses related to extreme winter weather. Many of these losses are related to flooding from frozen pipes. The claim record was only available beginning July 1, 1997.

Table 3.3.8-6 Loss Claims for State Facilities Caused by Extreme Winter Weather

Claim ID	Agency	Location	Cause of Loss	Date of Loss	Request	Indemnity
P98-025	University System	Missoula	Extreme Weather-Winter	1/11/1998	\$3,000	\$14,902
P98-031	Department Fish, Wildlife & Parks		Extreme Weather-Winter	1/28/1998		\$3,468
P-5102	University System	Missoula	Extreme Weather-Winter	12/24/1998		\$1,521
P-10685	Department of Transportation	Kalispell	Extreme Weather-Heavy Snow	1/24/2000		\$4,500
P-12519	University System	Bozeman	Extreme Weather-Winter	12/10/2000	\$3,000	
P-13159	University System	Billings	Extreme Weather-Winter	10/13/2001		\$1,923
P-13921	University System	Billings	Extreme Weather-Winter	4/1/2002		\$42,970
P-13949	University System	Bozeman	Extreme Weather-Winter	4/9/2002		\$35,359
B-14896	University System	Bozeman	Extreme Weather-Winter	2/23/2003		\$6,046
P-15720	University System	Bozeman	Extreme Weather-Winter	11/4/2003		\$9,505
P-15880	University System	Bozeman	Extreme Weather-Winter	1/5/2004		\$120,411
P-15886	Administration		Extreme Weather-Winter	1/6/2004		\$1,761
P-16106	University System	Missoula	Extreme Weather-Winter	1/6/2004		\$3,993
P-15889	University System	Butte	Extreme Weather-Winter	1/7/2004		\$9,930
P-15901	University System	Havre	Extreme Weather-Winter	1/8/2004		\$6,755
P-16215	University System	Missoula	Extreme Weather-Winter	1/9/2004		\$3,455
P-15920	University System	Bozeman	Extreme Weather-Winter	1/13/2004		\$12,688
P-15952	Health & Human Services		Extreme Weather-Winter	1/27/2004		
P-16106	University System	Missoula	Extreme Weather	12/8/2004		\$3,933
P-17931	Department of Transportation	Lewistown	Extreme Weather-Heavy Snow	12/1/2005		\$5,625
P-17640	University System	Bozeman	Extreme Weather-Winter	12/7/2005		\$16,844
P-17656	University System	Missoula	Extreme Weather-Winter	12/10/2005		\$8,170
P-17835	University System	Billings	Extreme Weather	11/26/2006		\$9730
P-18539	Department of Justice, Law Academy		Extreme Weather-Winter	1/12/2007	\$31,249	\$47,945
P-18540	Department of Military Affairs		Extreme Weather-Winter	1/14/2007		\$10,125.32
P-18555	University System	Bozeman	Extreme Weather - Extreme Cold	3/22/2007		\$2,072
TOTAL					\$37,249	\$383,631

Source: DOA, Risk Management and Tort Defense Division, 2007

All parts of Montana are considered highly vulnerable to impacts from winter storms. All state-owned facilities will have equal exposure to winter storm hazards.

3.3.8.5 Impact of Future Development

Future development should have little to no impact from winter storms and extended cold weather. In the event of extreme conditions the most significant challenge may be to

provide access, sheltering or emergency services to residents who construct homes in remote areas (Gallatin County Hazard Mitigation Plan, 2006).

3.3.8.6 Winter Storms and Avalanche Data Limitations

Inventories of potentially-exposed buildings that may have unprotected water lines or insufficient structural integrity were not found. To evaluate State vulnerability, this type of evaluation would be needed, where buildings are geo-referenced and can be mapped digitally. To adequately evaluate avalanche hazards, the state buildings would need to be assessed with reference to slope and average annual snowfall. In addition, analysis of statewide avalanche hazard areas has not been conducted. Additional inventories of unprotected versus protected power lines were not available from the various providers.

3.3.8.7 Winter Storms and Avalanche References

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3.3.9 Weather - Drought and Effects of Drought

Drought originates from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water or soil moisture shortage for some activity, group, or environmental sector. Drought is a normal, recurrent feature of climate, although many erroneously consider it a rare and random event. It occurs in virtually all climatic zones, but its characteristics vary significantly from one region to another.

3.3.9.1 Background

Drought is usually considered relative to some long-term average condition of balance between precipitation and evapo-transpiration perceived as "normal". Drought is related to the timing (i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of the rains.

The effects of drought become apparent with a longer duration because more and more moisture-related activities are affected. Agriculturally, non-irrigated croplands are most susceptible to moisture shortages. Rangeland and irrigated agricultural lands do not feel the effects of drought as quickly as the non-irrigated, cultivated acreage, but their yields can also be greatly reduced due to drought. Reductions in yields due to moisture shortages are often aggravated by wind-induced soil erosion.



Photo 3.3.9-1

Sand Dunes during 2002 Drought in Eastern Montana Source: Montana NRIS (2004)

In periods of severe drought, plant and forest fuel moisture is very low, increasing the potential for devastating wildland and rangeland fires. The most recent extreme fire seasons in 1988, 2000, and 2003 all coincided with sustained drought periods. Under extreme drought conditions, lakes, reservoirs, and rivers can be subject to severe water shortages, impacting irrigation, drinking water, fish populations, and fire suppression water supplies.

An additional hazard resulting from drought conditions is insect infestation. In the Northern Great Plains, rangeland grasshopper outbreaks have caused significant damage to the agricultural economy. Grasshopper populations tend to increase with both livestock grazing rates and dry conditions, and they can double, triple, or quadruple with each successive year of drought.



During a severe grasshopper outbreak, grasshoppers often remove more vegetation than cattle in the same pasture. Of the 400 species of grasshoppers in the Western United States, only about two dozen species are actually considered pest species capable of causing significant economic damage and a few species are even considered beneficial because they eat weeds. Grasshoppers are important to the grassland ecology, offering a primary food source for many grassland birds (NDMC, 2004; Branson, 2002).

Photo 3.3.9-2 The Lesser Migratory Grasshopper is the most Common Pest Species in the Western United States

Source: Branson, 2002

3.3.9.2 History of Drought and Effects of Drought in Montana

Our perspective of drought and its historic impact on Montana extends back about 100 years. A longer look at the history of climate for the region provides a little better perspective on how the most recent droughts and drought in the 1930s compare. Some of the research suggests the recent drought conditions were minor compared to drought modes that existed prior to 1200 A.D. Paleoclimate research indicates that regular and persistent droughts existed and were specifically pronounced during the years of A.D. 200-370, A.D. 700-850, and A.D. 1000-1200. These were long, sustained dry periods and made the period from A.D. 1200 to the present appear relatively wet (Laird and others, 1996).

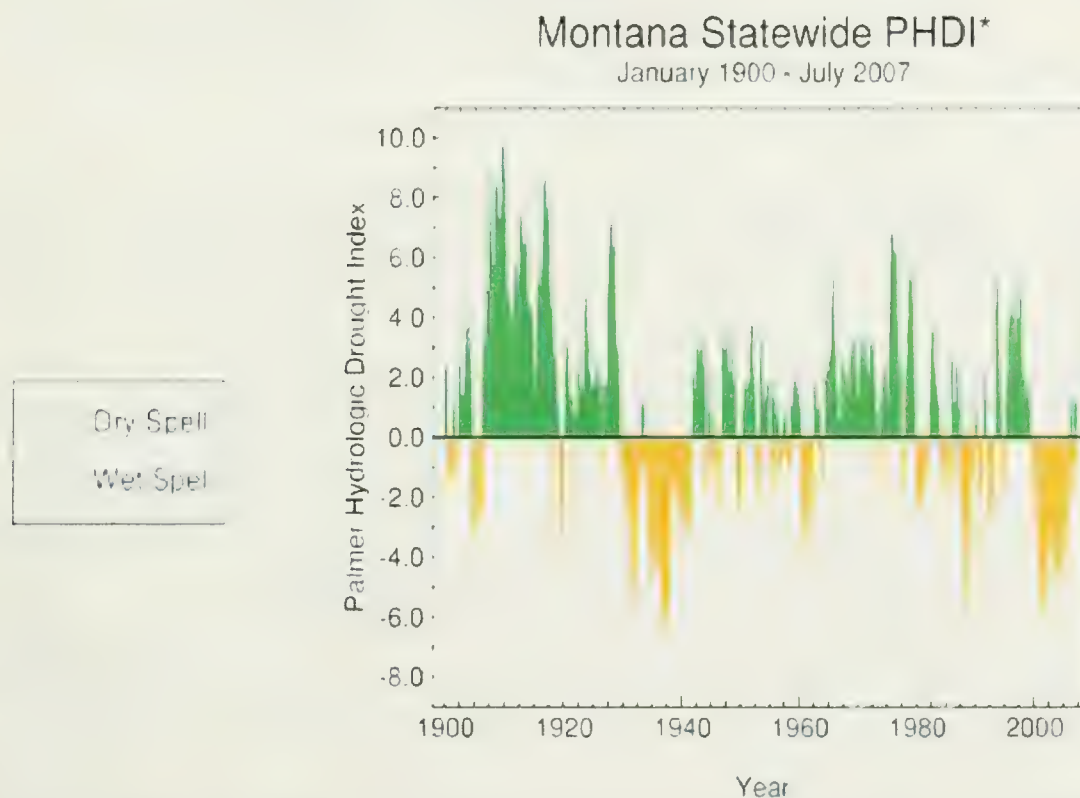
A closer focus into the more recent paleoclimate, using tree rings to identify dry periods, shows a much wetter period in the United States over the past 300 years. NOAA researchers reconstructed Palmer Drought Severity Indexes from tree-ring data and found that historic droughts, similar to severity and duration of drought during the 1950s, occurred once or twice a century for the past three centuries in the United States (1860s, 1820s, 1730s). The research also showed that there has not been another drought as extensive and prolonged as the 1930s drought in the past 300 years (NOAA, 2003).

In the last 100 years, the first experiences of drought impacts occurred shortly after homesteaders flooded the state. The homestead boom of 1906 through 1918 "busted" when severe drought swept the state from 1917 through 1923. The drought was compounded by plummeting market prices and banks demanding repayments. The out-washing exodus of demoralized homesteaders proved even more rapid than the previous incoming wave of optimistic settlers. Of the estimated 100,000 immigrants who flooded into the state (1906-1918), 65,000 departed between the armistice of World War I (1918) and

about 1925. The homestead collapse, among other forces, propelled Montana into a depression from which it did not recover until World War II (Montana Historical Society, 2004).

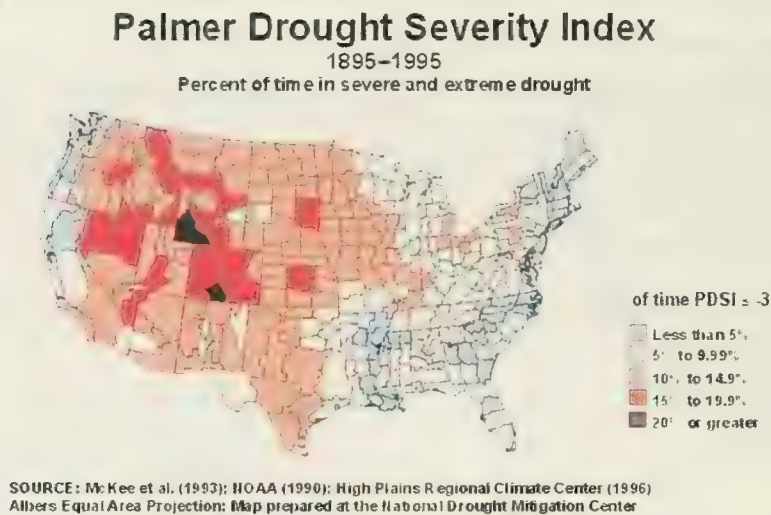
Already reeling from the 1919 drought and agricultural disaster, the Dust Bowl years further impacted agricultural production and economies throughout the state. The period from 1928 through 1939 was the driest in the historic record. The Palmer Hydrologic Drought Index (PHDI) showed the entire state was in a hydrologic deficit for over 10 years. Other sustained dry periods include the middle 1950s, early 1960s, mid-1970s, and the 1980s (**Figure 3.3.9-1**). The most-recent drought from 2000-2007, suggests the dryness and hydrologic deficit mimics the Dust Bowl years in everything but duration.

Figure 3.3.9-1 Palmer Hydrologic Drought Index 1900-2007
(Source: NCDC, 2007)



Many areas in the western U.S. have experienced drought. According to the PHDI, Montana has been in severe and extreme drought between 10 and 20 percent in the time in the last one hundred years (**Figure 3.3.9-2**).

Extreme high temperatures, low humidities, wind, rainfall, and snowpack can all contribute to drought conditions. Montana's weather extremes can be a factor in compounding an existing drought problem. In Glendive on July 20, 1893 and in Medicine Lake on July 5, 1937, the temperature reached 117°F. During 1960, the community of Belfry only received 2.97 inches of precipitation, another Montana extreme. Although Montana is typically known for its extreme winter weather, summertime extremes can also have an impact.

Figure 3.3.9-2 Percent of Time in Severe or Extreme Drought over 100 Years (1895-1995)

Drought and other agricultural disaster declarations in Montana from 1930-2003 are summarized in **Table 3.3.9-1**. Although damage information is incomplete, this table helps illustrate that the four years of drought from 2000-2004 has been one of the most costly in the past 30 years.

Table 3.3.9-1 Montana Drought and other Agricultural Disasters

Date	Event	Damages
1930-1938	Dust Bowl	
1938	Grasshopper Infestation affecting 17 counties with populations "between 40 and 500 hoppers per square yard".	\$6,500,000
1956	20 counties applied for Federal disaster aid due to reduced precipitation	
1961	17 counties requested designation as federal disaster areas due to lack of moisture, higher than normal temperatures, and grasshopper infestation.	
August 1961	24 counties applied for federal drought disaster aid.	Federal: \$420,000
1966	Below-normal precipitation for a 10-month period recorded in 10 weather stations across the state.	
August 1975	Grasshopper Infestation, Valley County. Up to 110-120 hoppers per square yard in hay fields. 40,000 acres sprayed.	State: \$60,000 Local: \$60,000
May 1977	Soil damaged by winds in western and southern part of state over a 7-month period.	250,000 acres of farmland damaged
June 1977	Hydroelectric water supplies critical; Governor Judge issued an energy supply alert and ordered 10% reduction in electricity use by state and local governments.	
1980	Record-low precipitation in eastern Montana since 1979. In Richland County alone, 600 of the county's 800 farmers had applied for federal payments for drought. Grasshopper infestations in isolated areas, little wheat planted, large numbers of livestock sold due to hay and water shortages.	Est. economic loss: \$380,000,000
1981	Drought starting in 1979 continued. March snow pack 50-60% of normal	
1984	By July, many High-Line cities experiencing water shortages and rationing schedules put into effect. Numerous forest and range fires.	Est. crop losses: \$12,000,000 to \$15,000,000

Table 3.3.9-1 Montana Drought and other Agricultural Disasters

Date	Event	Damages
1985	All 56 counties received disaster declarations for drought during this year. From 1982 to 1985, cattle herds reduced by 1/3. Smallest wheat crop in 45 years. Extended effects of drought: loss of off-farm jobs, closing of implement dealerships and Production Credit Associations.	Est. economic loss: \$3,000,000,000
June 1986	Grasshopper Infestation. Carter, Daniels, Golden Valley, Petroleum, Richland, Roosevelt, Sheridan, Treasure & Wibaux counties.	State: \$350,000 Local: \$350,000
June 1992	Drought Emergency (EO 13-92). All areas of the state, suspend certain regulatory authorities relating to the issuance of beneficial water use permits by DNRC because of drought.	
June 1992	Drought Disaster (EO 14-92). All areas of the state, continue the suspension of certain regulatory authorities relating to the issuance of beneficial water use permits by DNRC because of drought.	
October 1992	Terminating drought disaster (EO 20-92). Executive Order terminating the declaration of disaster ordered in EO 14-92.	
August 1994	Drought emergencies were declared in a number of Montana counties with 83% of the State reported under drought conditions at mid-month. Stress to stream fisheries (low water levels, high temp.); crop yields, wildfires.	
2000	Severe drought and persistent heat causing significant losses to agriculture and related industries	\$4.2 billion in damage/costs and 140 deaths nationwide
2000-2002	The U.S. Department of Agriculture (USDA) issued Natural Disaster Determinations (NDD) for drought for the entire state of Montana for the years 2000, 2001, and 2002. This designation entitled counties to low interest loans for producers, small business administration loans, and an Internal Revenue Service provision deferring capital gains.	
2003	The USDA issued NDD for drought for 35 counties in Montana on December 3, 2003. This designation makes Montana farmers and ranchers eligible for USDA Farm Service Agency (FSA) emergency farm loans if they have losses caused by drought in the 2003 crop year.	\$154,012,122 paid by FSA in Montana
2004	The USDA issued NDD for drought for 20 counties in Montana on April 23, 2004. This designation makes Montana farmers and ranchers eligible for USDA Farm Service Agency (FSA) emergency farm loans if they have losses caused by drought in the 2004 crop year.	

Sources: MDES, 1998, 2004 and 2007; NOAA, 2004; NCDC, 2004; US SBA, 2004.

Current drought conditions have drawn comparisons to drought in 1930s during the Great Depression and Dust Bowl period. In Montana, the Dust Bowl period lasted about 11 years, 1930-40 (inclusive). Below-normal precipitation was experienced during nearly every year of the Dust Bowl. Additionally, the 1930s were warmer than normal, which, again, exhibits some similarities to our current climate.

At some selected sites around the state, the NWS added up the amount of "lost" precipitation during the 11 year period, 1930-40, as compared to our current 30 year annual normal precipitation (**Figure 3.3.9-3**). Similarly, the NWS examined the "lost" precipitation from 1999 to 2003. For those years, the precipitation deficit is shown in **Figure 3.3.9-4**. **Figure 3.3.9-5** shows precipitation departure from normal for the State from 1996 to 2003.

Figure 3.3.9-3 Precipitation anomalies during 11 years of the Dust Bowl (1930-1940) Source: NWS, 2004

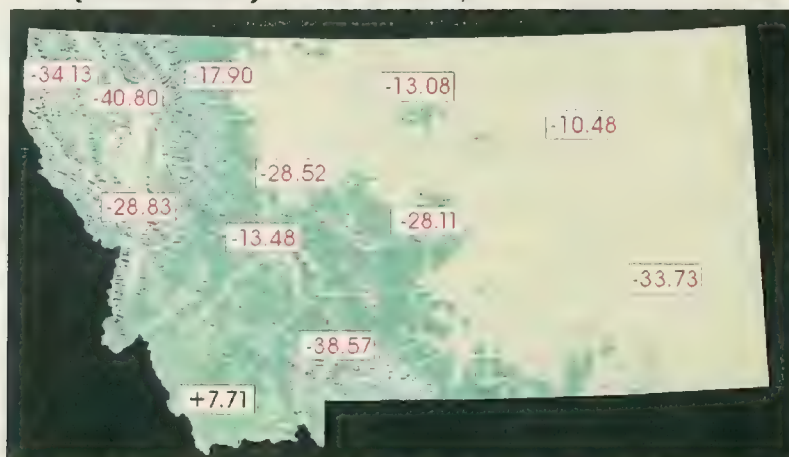
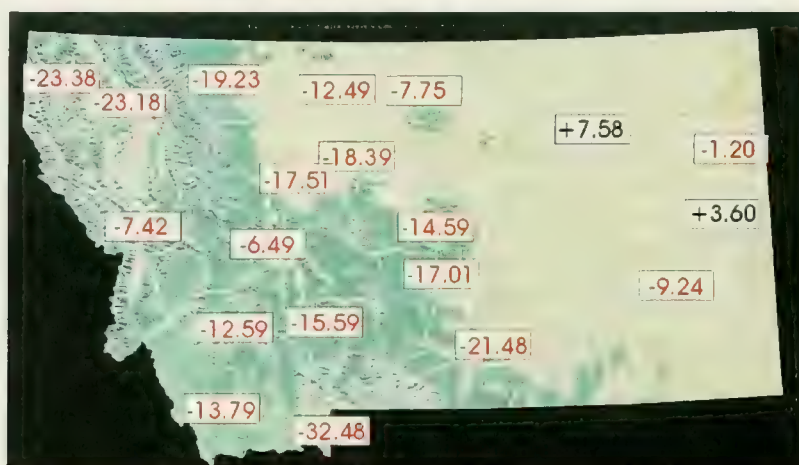


Figure 3.3.9-4 Precipitation anomalies 1999-2003 Source: NWS, 2004



Montana drought conditions for May, July and September for the period 2004 through 2007 are shown in **Figure 3.3.9-5**.

3.3.9.3 Declared Disasters from Drought and Effects of Drought

Drought disasters are unique; they typically do not require evacuations or constitute an imminent threat to life or property. As a result, disaster declarations and assistance are typically provided by agencies such as the USDA Farm Service Agency (FSA) and Small Business Administration (SBA). There have been no Presidential disaster declarations for drought, except for those related to wildland fires. The declarations at the federal level have been from the Secretary of Agriculture and are referred to as Natural Disaster Determinations (NDD). NDDs allow various assistance programs, such as the low-interest FSA Emergency Loans to Eligible Producers, and assistance through the Crop Disaster Program, Livestock Compensation Program, and Livestock Indemnity Program, among others. State disaster declarations and assistance were provided for grasshopper infestations, as shown in **Table 3.3.9-2**.

Figure 3.3.9-5 Montana Drought Status 2004 – 2007

2004 Montana County Drought Status

May

July

September

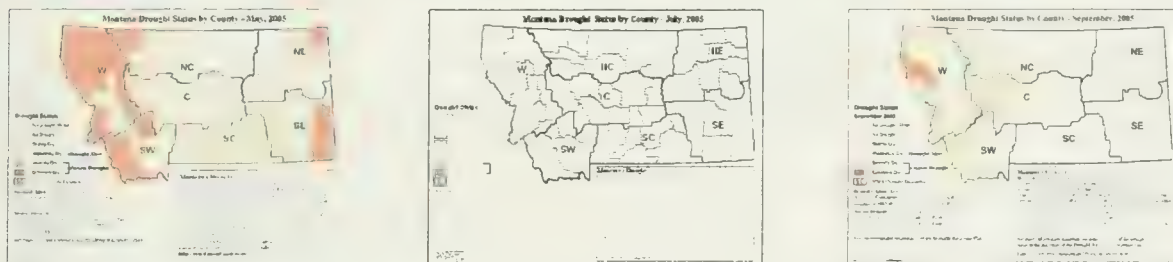


2005 Montana County Drought Status

May

July

September



2006 Montana County Drought Status

May

July

September

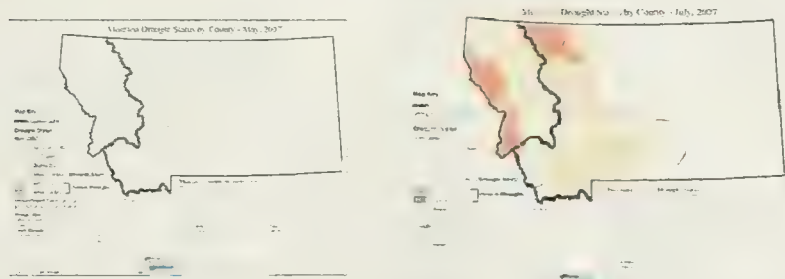


2007 Montana County Drought Status

May

July

September



Fill in when available

Source: NRIS, 2007

Table 3.3.9-2 State Disaster Declarations from Grasshopper Infestations

Year	PA No.	Applicant	State	Local
1975	MT-1-75	Valley County	\$59,562.00	\$ -
1985	MT-85-2	Carter County	\$12,912.62	\$12,913.62
1985	MT-85-3	Judith Basin County	\$15,770.00	\$15,770.00
1985	MT-85-4	Pondera County	\$43,480.00	\$43,480.00
1985	MT-85-5	Prairie County	\$11,704.18	\$11,704.18
1985	MT-85-6	Sheridan County	\$112,020.62	\$112,021.62
1985	MT-85-7	Wibaux County	\$19,507.89	\$19,507.89
1986	MT-86-1	Carter County	\$14,280.00	\$14,280.00
1986	MT-86-2	Daniels County	\$56,245.00	\$56,245.00
1986	MT-86-3	Golden Valley County	\$8,253.00	\$8,253.00
1986	MT-86-4	Petroleum County	\$9,842.00	\$9,842.00
1986	MT-86-5	Richland County	\$69,037.50	\$69,037.50
1986	MT-86-6	Roosevelt County	\$57,176.00	\$57,176.00
1986	MT-86-7	Sheridan County	\$100,152.50	\$100,152.50
1986	MT-86-8	Treasure County	\$12,733.00	\$12,733.00
1986	MT-86-9	Wibaux County	\$22,281.00	\$22,281.00
TOTAL			\$624,957.31	\$565,397.31

Source: MDES, 2004.

Natural Disaster Determinations were made for drought in each year from 2000 through 2006. The NDDs were statewide, except for the determinations in 2003 through 2006, which identified specific counties and tribal nations. **Table 3.3.9-3** summarizes the 2006 Montana Natural Disaster Determinations.

Figure 3.3.9-3 2006 Montana Natural Disaster Determinations

County	Type of Disaster	Comments
Big Horn	Fire, drought, heat stress, hot winds, hail, insects and late freezing	
Blaine	Drought, excessive Heat, Fire danger, Strong winds and hail	Economic hardship
Broadwater	Drought	Economic hardship
Carbon	Drought	Loss of livestock, broken power poles, dikes and damaged dams, roads washed out
Carter	Spring snow storm, drought, excessive heat, strong wind	
Custer	Fires, high temperatures, drought	
Daniels	Drought, fire, hail, severe storms, heat, winds, spring frost & freezing temps in spring	
Dawson	Drought, hail, excessive heat, fire, severe storms, strong winds, tornado	Loss of livestock, broken power poles, dikes and damaged dams, roads washed out
Fallon	Spring snow storm	Economic hardship
Garfield	Drought	
Golden Valley	Drought, excessive heat, fire danger, strong winds	
Hill	Drought, extreme fire danger, severe storms, excessive heat, strong wind	
Phillips	Drought, extreme heat, burning wildfires, excessive wind, hail, lack of water for stock	

Figure 3.3.9-3 2006 Montana Natural Disaster Determinations

County	Type of Disaster	Comments
Powder River	Spring snow storm	Loss of livestock
	Fires, high temperatures, drought	100 months of drought out of 108 months
Prairie	Drought, fire, severe storms, excessive heat, strong winds	
Richland	drought, excessive heat, wildfires	
Rosebud	Drought, hail, grasshoppers, high winds, wildfire declarations	
Roosevelt	Drought, excessive heat, fire,	
Sheridan	Drought	
Stillwater	Drought, excessive heat, burning fires	
Sweetgrass	Drought, extreme heat, burning wildfires	
Teton	A decade of drought, excessive heat, hail, strong winds	
Valley	Drought, excessive heat, fire danger, strong winds	
Yellowstone	Prolonged drought, wildfire damages	

Source: Montana DNRC, 2007a

Table 3.3.9-4 shows the USDA Farm Service Agency payments by program for 2004 to 2007. It should be noted that the assistance paid in any given year is based on crop or grazing losses from two and three years prior.

Table 3.3.9-4 FSA Payments to Montana Agricultural Producers for Drought, FY 2004-2006 (Oct 1 through Sept 30)

USDA Farm Service Agency Program	Payments from USDA		
	2004	2005	2006
Emergency Conservation Program (ECP)	\$506,030	\$783,328	\$235,611
Crop Year for Crop Disaster Program (CDP)	\$22,799,583	\$66,552,674	\$2,396,012
American Indian Livestock Feed Program (AILFP)		\$167,412	\$2,667,049
Livestock Assistance Program (LAP)	\$14,392,544	\$3,874,895	\$25,281,643
Non-insured Crop Disaster Program (NAP)	\$2,771,610	\$7,756,284	\$529,087
Other Disaster Assistance Programs	\$1,737,893	-	-
Total	\$42,207,660	\$79,134,593	\$31,109,402

Source: USDA FSA, 2007

Drought has a profound effect on other contributors to the agricultural economy beyond producers. The Small Business Administration can make declarations to provide assistance to businesses that are directly related to agricultural production, such as implement dealers and agricultural suppliers. The SBA issued the following weather disaster declarations in recent years (US SBA, 2004; US SBA 2007):

- **SBA Declaration #9Y61 – Drought:** Small businesses in Beaverhead, Gallatin, Madison, and Ravalli Counties were eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA. **Excessive Heat:** Small businesses in Mineral, Missoula, and Ravalli Counties were eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA.
- **SBA Declaration #9Y72 – Drought:** Small businesses in the entire state were eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA.

- **SBA Declaration #9Y79 for Flooding, Ground Saturation, Storms, Winds, Tornadoes, High Humidity, Dry Conditions, and Severe Temperatures.** Small businesses in Fallon, Richland, Roosevelt, Sheridan, and Wilboux Counties were eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA. These loans were available to small businesses dependent on farmers and ranchers that suffered financial losses that occurred starting April 1, 2003.
- **SBA Declaration #9Y53 for Extreme Heat, High Wind, Severe Storms, Prairie and Forest Fires and Below Normal Precipitation.** Small businesses in Carter and Fallon Counties were eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA. These loans were available to small businesses dependent on farmers and ranchers that suffered financial losses that occurred starting January 1, 2003.
- **SBA Declaration #10086 - Drought:** Small business in Carbon, Gallatin and Park Counties were eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA. These loans were available to small businesses dependent on farmers and ranchers that suffered financial losses in 2005.

3.3.9.4 Vulnerability to Drought and Effects of Drought

3.3.9.4.1 Statewide Vulnerability to Drought and Effects of Drought

Any place in the state can be considered vulnerable to drought. Weather cycles will dictate the availability of water and the extreme temperatures to exacerbate drought. Vulnerability is related to lack of preparedness. The ability to have adequate stores of water, to change to drought resistant crops, to implement conservation measures during extended dry periods, all help to reduce negative impacts. Vulnerability is increased when lessons learned during drought are ignored or forgotten following a return to normal weather patterns.

Since Montana's population and water usage is continuing to grow, demand for water is rising at a steady rate. Available supplies have also increased over the years through a variety of structural (dams) and non-structural (conservation) means, but the State's ability to create new levels of supply is marginal. In recent years, demands on water have been increasing faster than supplies, so that tolerance to deal with water shortages is diminishing. The balance between supply and demand is likely to be disrupted more and more often, and in the future, water shortages are likely to be more frequent and costly.

The most effective means to assess vulnerability from drought is to determine what areas are exposed economically to the effects of drought. Water shortages force conservation and water use restrictions, can reduce our recreation opportunities, and can increase the threat of wildland and rangeland fire. For many Montana residents, water shortages may impact sectors of our economy, but are seldom disastrous. The major exception is agriculture, and those who directly depend on the agricultural economy. Drought has the most profound impact on growing crops and providing enough feed for livestock.

Counties that have a high dependence on agriculture are reflected in the percentage of personal farm income to total personal income. These counties may be more vulnerable to drought. **Table 3.3.9-5** shows the ten counties that have the highest percentage of farm income to personal income as measured in 2003. The table also shows that some counties recovered somewhat from drought in 2004 and 2005 through the increase of farm personal income, while in other counties the impact of drought is still apparent through the decrease of farm personal income.

Table 3.3.9-5 Total Personal and Farm Income by County (2003-2005)

County	2003			2004			2005		
	Personal (\$,000)	Farm (\$,000)	%	Personal (\$,000)	Farm (\$,000)	%	Personal (\$,000)	Farm (\$,000)	%
Liberty	\$51,744	\$11,616	22.45%	\$50,116	\$9,215	18.39%	\$52,068	\$10,787	20.72%
Petroleum	\$9,854	\$2,196	22.29%	\$9,909	\$1,959	19.77%	\$10,191	\$1,963	19.26%
Garfield	\$32,649	\$6,681	20.46%	\$32,169	\$6,206	19.29%	\$36,455	\$9,626	26.41%
Prairie	\$30,423	\$5,685	18.69%	\$30,219	\$5,629	18.63%	\$31,903	\$6,191	19.41%
Chouteau	\$138,608	\$22,913	16.53%	\$149,648	\$27,480	18.36%	\$150,859	\$26,881	17.82%
Wibaux	\$22,590	\$3,043	13.47%	\$22,086	\$1,710	28.10%	\$24,300	\$3,811	26.41%
McCone	\$40,584	\$5,442	13.41%	\$43,317	\$6,171	14.25%	\$44,797	\$6,791	15.16%
Sheridan	\$104,549	\$13,488	12.90%	\$107,980	\$15,427	14.29%	\$103,305	\$9,922	9.60%
Daniels	\$52,415	\$6,315	12.05%	\$54,626	\$8,348	15.28%	\$53,570	\$6,564	12.25%
Meagher	\$45,505	\$4,652	10.22%	\$47,622	\$6,581	13.82%	\$48,603	\$6,918	14.23%
Montana	\$24,177,191	\$346,030	1.43%	\$25,790,606	\$480,005	1.86%	\$27,121,828	\$452,983	1.67%

Source: USDC BEA, 2007

3.3.9.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.9-6 presents the Drought Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.9-6 presents a summary of potential loss estimates due to drought as calculated in the Local PDM Plans. Drought loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.9-6** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

3.3.9.4.3 Vulnerability of State Property

Drought disasters impact economies and can threaten timber reserves, through wildland fires and other environmental impacts. State property that could be vulnerable to drought includes leased cropland and state forest property. Leased cropland and grazing leases return approximately \$16.8 million annually to the state. Timber production from state-owned timber tracts returned \$13 million in FY 2006 (Montana DNRC, 2007b). The exposure of leased cropland and timber lands is low, as the return from these properties is relatively small.

State-owned facilities are not considered to be vulnerable to drought.

Figure 3.3.9-6 Hazard Risk Map: Drought

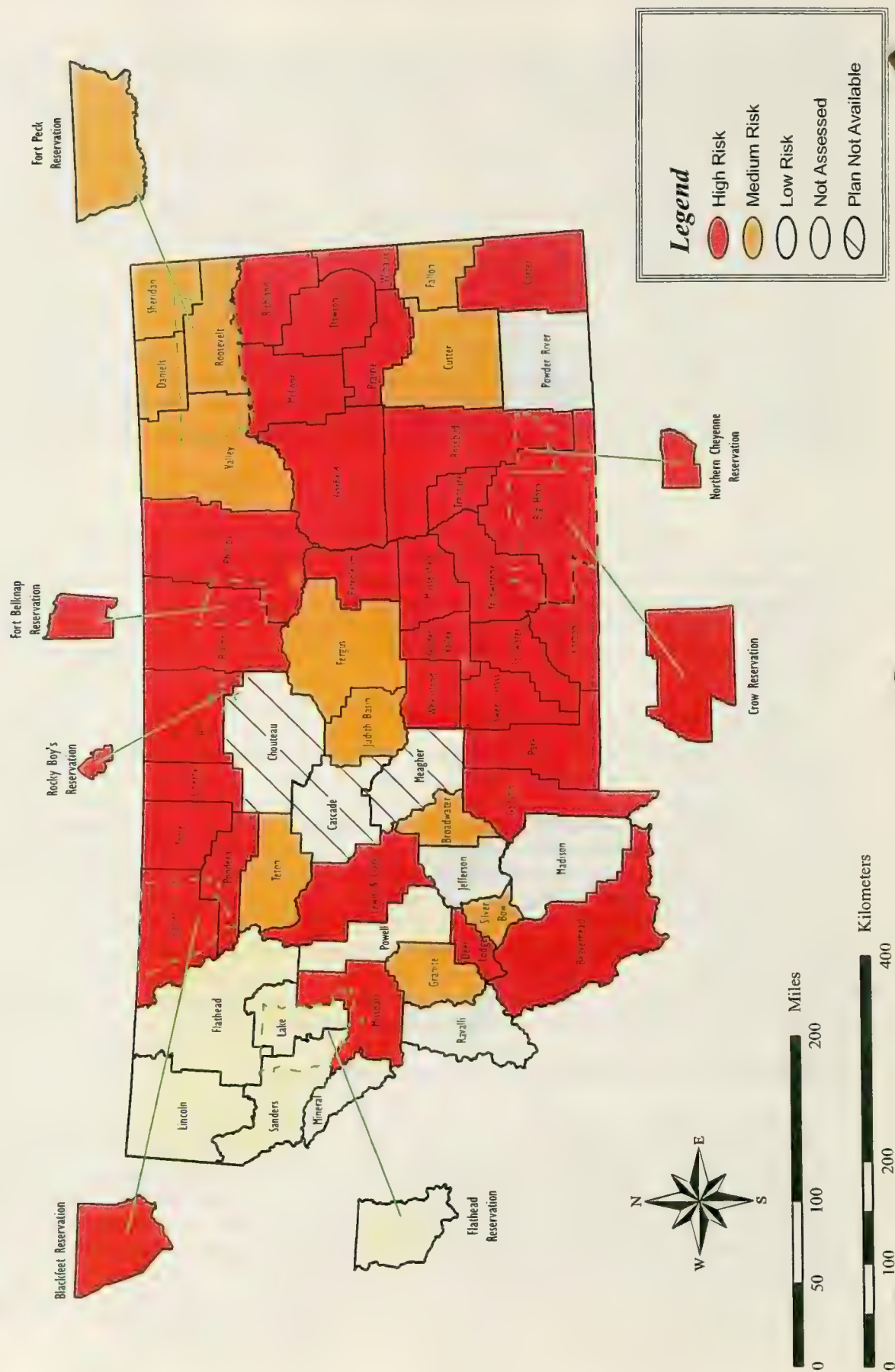


Table 3.3.9-6 Potential Losses from Local Plans: Drought

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Low	Low	High	1
1	Flathead County	Low	Low	Moderate	8
1	Flathead Reservation	NA	NA	NA	
1	Granite County	Low	Low	High	1
1	Lake County	NA	NA	NA	
1	Lincoln County	NA	NA	NA	
1	Mineral County	NA	NA	NA	
1	Missoula County	NA	NA	NA	
1	Powell County	Medium	Low	NA	10
1	Ravalli County	NA	NA	NA	
1	Sanders County	NA	NA	NA	
1	Silver Bow County	Low	Low	Moderate-High	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	NA	NA	NA	
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	NA	NA	NA	
2	Liberty County	NA	High	Very High	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	NA	High	Very High	11
3	Beaverhead County	\$0	5,153	NA	5
3	Broadwater County	Low	Low	High	1
3	Gallatin County	Low	Low	High	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Low	Low	High	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	High	Low	High	12
4	Custer County	NA	NA	\$8 million	13
4	Dawson County	NA	NA	\$23,631,510	8
4	Fallon County	NA	NA	\$6 million	8
4	Garfield County	Low	Low	Millions	1
4	McCone County	NA	NA	Millions	3
4	Powder River County	Low	Low	Millions	1
4	Prairie County	NA	NA	\$1,638,705	3
4	Richland County	NA	NA	\$5,668,613	3
4	Wibaux County	NA	NA	\$1,361,113	3
5	Big Horn County	Low	Moderate	\$10,000,000	3
5	Carbon County	NA	NA	NA	

Table 3.3.9-6 Potential Losses from Local Plans: Drought

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Crow Reservation	NA	High	\$10,000,000	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	None	Moderate	Millions	3
5	Rosebud County	Low	Low	High	1
5	Stillwater County	NA	NA	NA	
5	Treasure County	Low	Moderate	High	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	NA	NA	NA	
6	Fergus County	NA	2	4	4
6	Fort Peck Reservation	NA	NA	NA	
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	NA	NA	NA	
6	Roosevelt County	NA	NA	NA	
6	Sheridan County	NA	NA	NA	
6	Valley County	NA	NA	NA	

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan
 Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

3.3.9.5 Impact of Future Development

The impact of future development on the drought hazard would be through limiting groundwater resources. Since the Montana Department of Environmental Quality carefully monitors and regulates public water systems, individual wells and septic systems, the impact of future development with respect to drought is considered low.

3.3.9.6 Drought and Effects of Drought Data Limitations

Historic information on USDA FSA payments for drought was not available, except for year 2003. This historical information is critical to determine the locations most affected by drought. The effects and time frames of drought are very subtle and sometimes are masked by other economic and weather conditions. Continued documentation of losses attributed to drought will allow more specificity in the hazard assessment.

3.3.9.7 Drought and Effects of Drought References

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3.3.10 Weather - Severe Thunderstorms, Hail, Wind and Tornadoes

3.3.10.1 Background

A **severe thunderstorm** is a thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds of 50 knots (58 mph) or more. Structural wind damage or damaged crops may imply the occurrence of a severe thunderstorm. A thunderstorm is approaching severe levels when it contains winds of 35 to 49 knots (40 to 57 mph) or hail ½-inch or larger but less than ¾-inch in diameter. Although not considered "severe", lightning and heavy rain can also accompany thunderstorms.

A **chinook** is a warm wind that develops down the east slopes of the Rocky Mountains. At times, these winds can reach several hundred of miles into the high plains.

High winds can also occur with strong pressure gradients or gusty frontal passages. These winds can affect the entire state with wind speeds in excess of 75-100 mph. Combined with snowfall or snow on the ground, high winds can cause blizzard conditions.

A **tornado** is a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. Until recently, tornadoes were categorized by the Fujita scale based on the tornado's wind speed.

The Enhanced Fujita (EF) Scale was implemented in place of the Fujita scale and began operational use on February 1, 2007. A comparison of the Fujita and EF scales and wind speeds are summarized in **Table 3.3.10-1**. The EF scale has six categories from zero to five representing increasing degrees of damage. It was revised to reflect better align wind speeds more closely with associated storm damage. It also adds more types of structures as well as vegetation, expands degrees of damage, and better accounts for variables such as differences in construction quality. The EF-scale is a set of wind estimates based on damage. It uses three-second estimated gusts at the point of damage. These estimates vary with height and exposure. Forensic meteorologists use 28 damage indicators (**Table 3.3.10-2**) and up to 9 degrees of damage to assign estimated speeds to the wind gusts.

Table 3.3.10-1 Comparison of Fujita and Enhanced Fujita Tornado Scale

Fujita Scale			Enhanced Fujita (EF) Scale		
Scale	Wind Speed (mph)	Typical Damage	Scale	3-Second Gust Speed (mph)	Typical Damage
F0	<73	Light Damage - Some damage to chimneys; branches broken off trees; shallow-rooted trees pushed over; sign boards damaged.	EF0	66-85	Light Damage - Causes some damage to siding and shingles.
F1	73-112	Moderate Damage - Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos blown off roads.	EF1	86-110	Moderate Damage - Considerable roof damage. Winds can uproot trees and overturn single-wide mobile homes. Flagpoles bend.
F2	113-157	Considerable Damage - Roofs torn off frame houses; mobile homes demolished; boxcars overturned; large trees snapped or uprooted; light object missiles generated; cars lifted off ground.	EF2	111-135	Considerable Damage - Most single-wide mobile homes destroyed. Permanent homes can shift off foundations. Flagpoles collapse. Softwood trees debarked.

Table 3.3.10-1 Comparison of Fujita and Enhanced Fujita Tornado Scale

Fujita Scale			Enhanced Fujita (EF) Scale		
Scale	Wind Speed (mph)	Typical Damage	Scale	3-Second Gust Speed (mph)	Typical Damage
F3	158-206	Severe Damage - Roofs and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.	EF3	136-165	Severe Damage - Hardwood trees debarked. All but small portions of houses destroyed.
F4	207-260	Devastating Damage - Well-constructed houses leveled; structures with weak foundations blown away some distance; cars thrown and large missiles generated.	EF4	166-200	Devastating damage - Complete destruction of well-built residences, and large sections of school buildings.
F5	261-318	Incredible Damage - Strong frame houses lifted off foundations and swept away; automobile sized missiles fly through the air in excess of 100 meters.	EF5	>200	Incredible Damage - Significant structural deformation of mid- and High-rise buildings.

Source: NOAA-Storm Prediction Center, 2007

Table 3.3.10-2 Enhanced Fujita Scale Damage Indicators (DI)

DI No.	Damage Indicator	DI No.	Damage Indicator
1	Small Barns or Farm Outbuildings	15	Elementary School (Single-Story; Interior or Exterior Hallways)
2	One- or Two-Family Residences	16	Junior or Senior High School
3	Manufactured Home - Single Wide	17	Low-Rise Building (1-4 Stories)
4	Manufactured Home - Double Wide	18	Mid-Rise Building (5-20 Stories)
5	Apartment, Condo, Townhouse (3 stories or less)	19	High-Rise Building (over 20 Stories)
6	Motel	20	Institutional Building (Hospital, Government or University Building)
7	Masonry Apartment or Motel Building	21	Metal Building System
8	Small Retail Building (Fast Food Restaurant)	22	Service Station Canopy
9	Small Professional Building (Doctor's Office, Branch Bank)	23	Warehouse Building (Tilt-Up Walls or Heavy Timber Construction)
10	Strip Mall	24	Transmission Line Towers
11	Large Shopping Mall	25	Free-Standing Towers
12	Large, Isolated ("big box") Retail Building	26	Free Standing Light Poles, Luminary Poles, Flag Poles
13	Automobile Showroom	27	Tree - Hardwood
14	Automotive Service Building	28	Tree - Softwood

Source: NOAA-Storm Prediction Center, 2007

A thunderstorm is formed from a combination of moisture, rapidly rising warm air, and a force capable of lifting air, such as a warm and cold front or a mountain. All thunderstorms contain lightning. Thunderstorms may occur singly, in clusters, or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. Some of the most severe flooding from a thunderstorm occurs when a single thunderstorm affects one location for an extended time.

At any given moment, nearly 1,800 thunderstorms are in progress over the surface of the earth. On average, there are 100,000 thunderstorms each year in the U.S. Approximately 1,000 tornadoes develop from these storms. Straight-line winds are responsible for most thunderstorm damage.

Large hail results in nearly \$1 billion in damage annually to property and crops in the U.S. Flash floods cause an average of 146 deaths each year in the U.S with lightning killing an additional 75 to 100 people on average.

Lightning is an electrical discharge that results from the buildup of positive and negative charges within a thunderstorm and the earth's surface. When the buildup becomes strong enough, lightning appears as a "bolt". This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning reaches a temperature approaching 50,000 degrees in a split second. The rapid heating and cooling of air near the lightning causes thunder.

Lightning's electrical charge and intense heat can electrocute on contact, split trees, ignite fires, and cause electrical failures. Approximately 10,000 forest fires are started each year by lightning, including dry thunderstorms common to Montana each summer. Approximately \$100 million in annual losses result from forest and building fires caused by lightning.

Sources: TPO, 2004; NWS, 2004; FEMA, 2004; Curran and others, 1995.

3.3.10.2 History of Severe Thunderstorms, Hail, Wind and Tornadoes in Montana

The recording of weather events is highly dependent upon the public's observations and reporting to the National Weather Service. While weather stations are used to document wind speeds and precipitation, the spotting of tornadoes and assessment of hail stone size is often recorded based on a person's observations. These observations may be more accurate in populated areas where weather stations and other observations can verify extreme events. Rural areas may go under reported because of the fewer people that observe or witness the events. Reporting of extreme events may have also increased in the last 10 years because of better means to communicate storm events to the National Weather Service. As a result, records of storm events may indicate more frequent storms in recent history than in the past, a greater number of reports in populated areas versus rural areas, and more recent recording and documentation of losses related to severe thunderstorms

In Montana, most of the tornadoes occur in June, followed closely by the month of July. From 1950 to 2006, Montana had an annual average of six tornadoes. From 1950 to 2006, 97 of the 345 recorded tornado and funnel cloud events in Montana were considered F1 speeds or greater as recorded by the National Weather Service (2007). Montana had five deaths and at least 77 injuries from tornadoes from 1880 to 2006 (**Table 3.3.10-3**). The National Weather Service database indicates that from 1950 to 2006, severe summer weather has caused \$69 million in property damage and \$11 million in crop damage (**Table 3.3.10-4**).

Six deaths and 25 injuries were attributed to lightning strikes in Montana between 1950 and 2006 (**Table 3.3.10-4**). Based on historical storm data, hail and damaging winds are more likely to occur in Montana between 6:00 and 7:00 pm.

Table 3.3.10-3 Tornadoes Causing at Least One Death or Three Injuries in Montana (1880 to 2006)

Date	Event	Deaths	Injuries
May 15, 1883	Homes and other buildings destroyed at a mining community, eight miles south of Butte.	0	6
June 10, 1923	Two men killed by a falling tree as a tornado hit a copper mine near Rivulet in Mineral County.	2	0
June 15, 1924 2:30 pm	Three homes destroyed at a farming community northwest of Great Falls.	0	7
July 4, 1927 3:30 pm	Barns destroyed and livestock killed eight miles southwest of Suffolk, Fergus County.	0	6
May 22, 1933 6:00 pm	Ten buildings destroyed in Bainville, Roosevelt County. The injuries were in a cafe.	0	12
May 8, 1934 6:30 pm	A dozen homes unroofed and two service stations destroyed at Plentywood, Sheridan County.	0	7
June 27, 1936 2:30 pm	Seven injured by an F1 tornado in Blaine County.	0	7
June 7, 1946 2:00 pm	One killed and one injured by an F3 tornado in Roosevelt County.	1	1
September 16, 1946 5:15 pm	A small home destroyed near Sidney, Richland County.	0	8
July 19, 1952 3:30 pm	A large farm near the North Dakota border completely destroyed in Wibaux County.	1	2
July 10, 1965 5:15 pm	An F1 tornado injured 5 and caused \$2.5 million in property damage in Choteau County.	0	5
July 9, 1983 6:37 pm	As the tornado passed near Vida, McCone County, it threw a car, with two people, for 200 yards.	1	1
July 20, 1993 5:30 pm	Two mobile homes destroyed in Rosebud County, two miles south of Lame Deer	0	3
August 14, 1999 4:15 pm	Two miles east of Lewistown	0	3
TOTAL		5	68

Source: TPO, 2007, NOAA-NCDC, 2007

Table 3.3.10-4 NOAA Severe Weather Summary (1950-2006)

TYPE	Dates	Number of Events	Fatalities	Injuries	Property Damage	Crop Damage
Dust Storms	1994-2006	6	1	11	\$93,000	\$500,000
Tornadoes (F1 or greater)	1950-2006	95	2	20	\$23,070,000	\$130,000
Hail (2 inches in diameter or greater)	1950-2006	304	0	2	\$5,440,000	\$1,575,000
Significant Lightning Events	1950-2006	42	6	25	\$1,231,000	\$3,000
Winds Events with at least one death	1950-2006	7	9	5	\$260,000	\$0
Wind Events with Recorded Property Damage	1950-2006	299	1	15	\$39,155,000	\$8,987,000
Total		753	19	78	\$69,249,000	\$11,195,000

Source: NOAA-NCDC, 2007

3.3.10.3 Declared Disasters from Severe Thunderstorms, Hail, Wind and Tornadoes

Disaster declarations for tornado and extreme wind and hailstorm events are shown in **Table 3.3.10.5**. No federal declarations have been made strictly for these categories of storms.

Table 3.3.10-5 Montana Disaster Declarations from Thunderstorms, Hail, Wind and Tornadoes (1974 through 2/2007)

Date	Event	Damages
July 23, 1997	Windstorm (EO 14-97). Disaster declaration for the City of Libby	State: \$56,549 Local: \$6,434
Sept. 5, 1997	Windstorm (EO 16-97). Disaster declaration for the City of Wolf Point	State: \$13,833 Local: \$3,994
June 23, 1999	Windstorm/Tornado (EO 7-99). Disaster declaration for the Town of Opheim	State: \$10,366 Local: \$296
August 14, 1999	Windstorm/Tornado (EO 11-99). Disaster declaration Fergus County and the City of Lewistown	State: \$298,609 Local: \$11,544
June 14, 2006	Windstorm (EO 35-06). Disaster declaration in the City of Glendive.	0
January 3, 2007	Windstorm (EO 01-07). Incident declaration to provide IA assistance to the Blackfeet Nation due to a wind event.	0

Source: MDES, 2007

3.3.10.4 Vulnerability to Severe Thunderstorms, Hail, Wind and Tornadoes**3.3.10.4.1 Statewide Vulnerability to Severe Thunderstorms, Hail, Wind and Tornadoes**

In the case of severe thunderstorms, hail, wind, and tornadoes, the location and frequency of previous events are probably the best determiners of future events. Concentrations of these recorded events identify patterns of where they may likely occur in the future.

Table 3.3.10-6 shows the counties/tribal reservations with the highest frequency of tornadoes (F0 or greater as recorded from 1950 through 2006, hail events 2-inch diameter or greater (1955-2006), synoptic wind events of 75 mph or greater (1993-2006) and thunderstorm winds 75 mph or greater (1955-2006). The patterns of occurrence across the state for these events are shown on **Figures 3.3.10-1, 3.3.10-2, and 3.3.10-3**.

Table 3.3.10-6 Counties with High Frequency of Tornadoes, Wind, and Hail Events

Tornadoes (\geq F0)		Hail (\geq 2-inch diameter)		Thunderstorm Wind (\geq 75 mph)		Synoptic Wind (\geq 75 mph)	
County	#	County	#	County	#	County	#
Valley	33	Valley	20	Yellowstone	34	Glacier	35
Fergus	28	Rosebud	19	Rosebud	25	Cascade	30
Yellowstone	17	Powder River	18	Custer	17	Wheatland	30
Roosevelt	15	Yellowstone	17	Powder River	16	Hill	26
Chouteau	14	Fergus	14	Broadwater	15	Teton	20
Powder River	14	McCone	12	Big Horn	11	Chouteau	19
Judith Basin	13	Phillips	11	Hill	11	Toole	19
Cascade	13	Garfield	10	Valley	11	Pondera	18
Dawson	13	Big Horn	10	Dawson	10	Lewis and Clark	18
Garfield	11	Carter	10	Garfield	9	Big Horn	17
Richland	11	Custer	10	Roosevelt	9	Liberty	15
Beaverhead	11	Lewis and Clark	9	Teton	9	Yellowstone	12

Source: NOAA-NCDC, 2007

Vulnerability to wind, hail, and tornado events can be measured as a function of the frequency and potential for property damage. Historic data on occurrence and estimated damages were compiled from National Weather Service records and provided through the National Climatic Data Center. Because hail, wind, and tornado events are often related, the frequency of a potentially damaging event was calculated for each county in any given year. For example, if the frequency is 200 percent, the county will have, on average, a potentially damaging event twice each year. The frequency for each type of event was summed to

provide a relative risk by county/tribal reservation. The counties with summed frequency in excess of 100 percent are listed in **Table 3.3.10-7** and shown on **Figure 3.3.10-4**.

Table 3.3.10-7 Composite Storm Index for Counties with Highest Vulnerability to Tornado, Extreme Wind, and Hail Damage

County	Tornado Frequency	Hail Frequency	Thunderstorm Wind Frequency	Synoptic Wind Frequency	Summary of Frequency
Cascade	22.81%	15.38%	28.85%	214.29%	281.32%
Glacier	5.26%	0.00%	3.85%	250.00%	259.11%
Hill	10.53%	3.85%	21.15%	185.71%	221.24%
Chouteau	24.56%	11.54%	9.62%	135.71%	181.43%
Big Horn	17.54%	19.23%	21.15%	121.43%	179.36%
Teton	7.02%	9.62%	17.31%	142.86%	176.80%
Fergus	49.12%	26.92%	11.54%	85.71%	173.30%
Lewis and Clark	10.53%	17.31%	5.77%	128.57%	162.17%
Valley	57.89%	38.46%	21.15%	42.86%	160.37%
Toole	12.28%	5.77%	5.77%	135.71%	159.53%
Pondera	0.00%	9.62%	3.85%	128.57%	142.03%
Liberty	7.02%	3.85%	5.77%	107.14%	123.78%
Judith Basin	22.81%	11.54%	9.62%	78.57%	122.53%
Custer	10.53%	19.23%	32.69%	50.00%	112.45%
Blaine	5.26%	5.77%	13.46%	85.71%	110.21%
Garfield	19.30%	19.23%	17.31%	50.00%	105.84%
Powder River	24.56%	34.62%	30.77%	14.29%	104.23%

Notes: Hail (2-inch diameter or greater) from 1955 - 2006

Tornadoes (F0 and greater) from 1950 - 2006

Thunderstorm wind events 75 mph or greater from 1955 - 2006

Synoptic wind events 75 mph or greater from 1993- 2006

3.3.10.4.2 Review of Potential Losses in Local PDM Plans

Figure 3.3.10-5 presents the Thunderstorm Wind-Hail-Tornado Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Figure 3.3.10-2 Hail Reports of 2 Inches or Greater 1955 – 2005

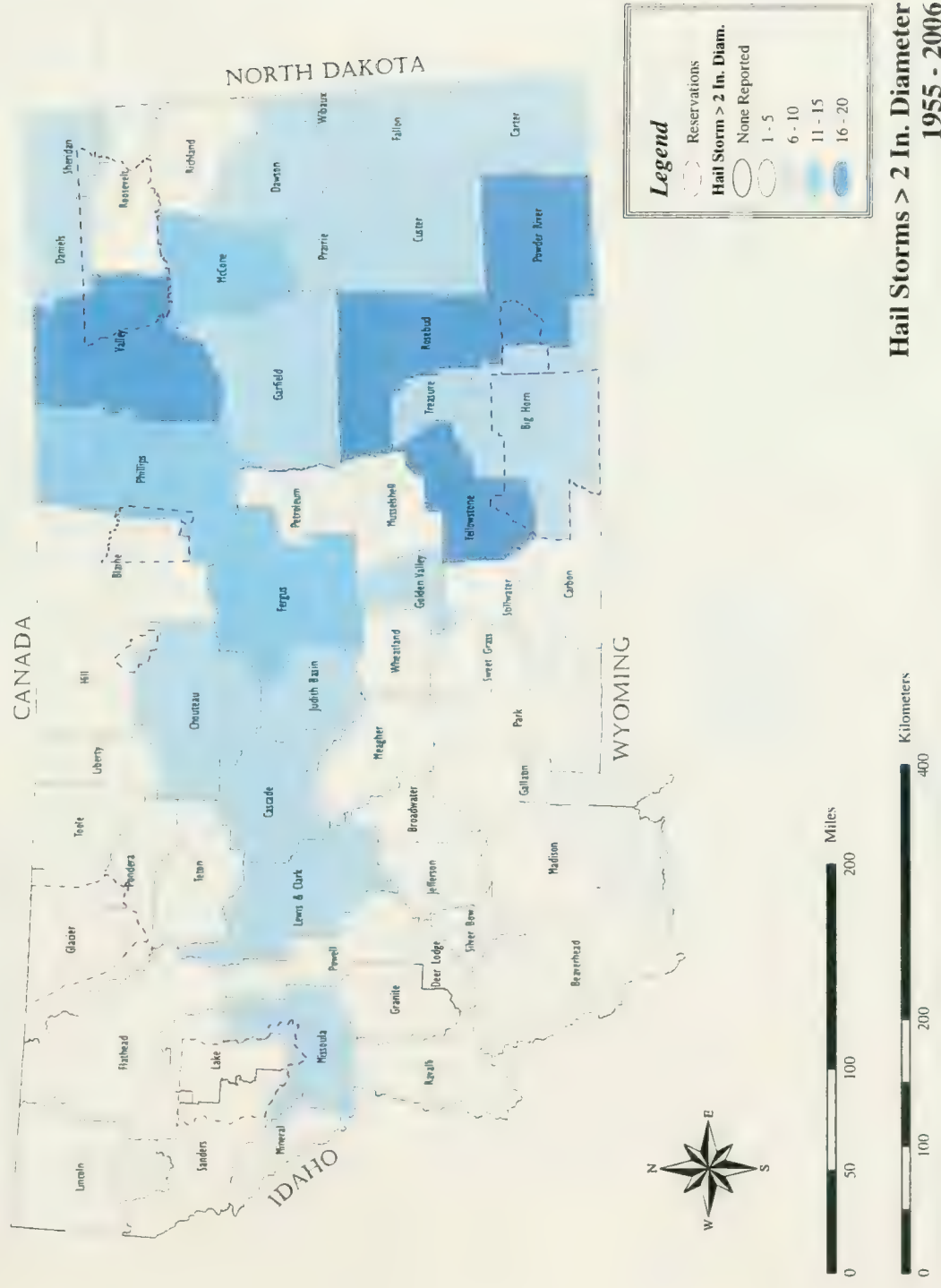


Figure 3.3.10-3 Frequent Wind Events (≥ 75 mph) 1993-2006

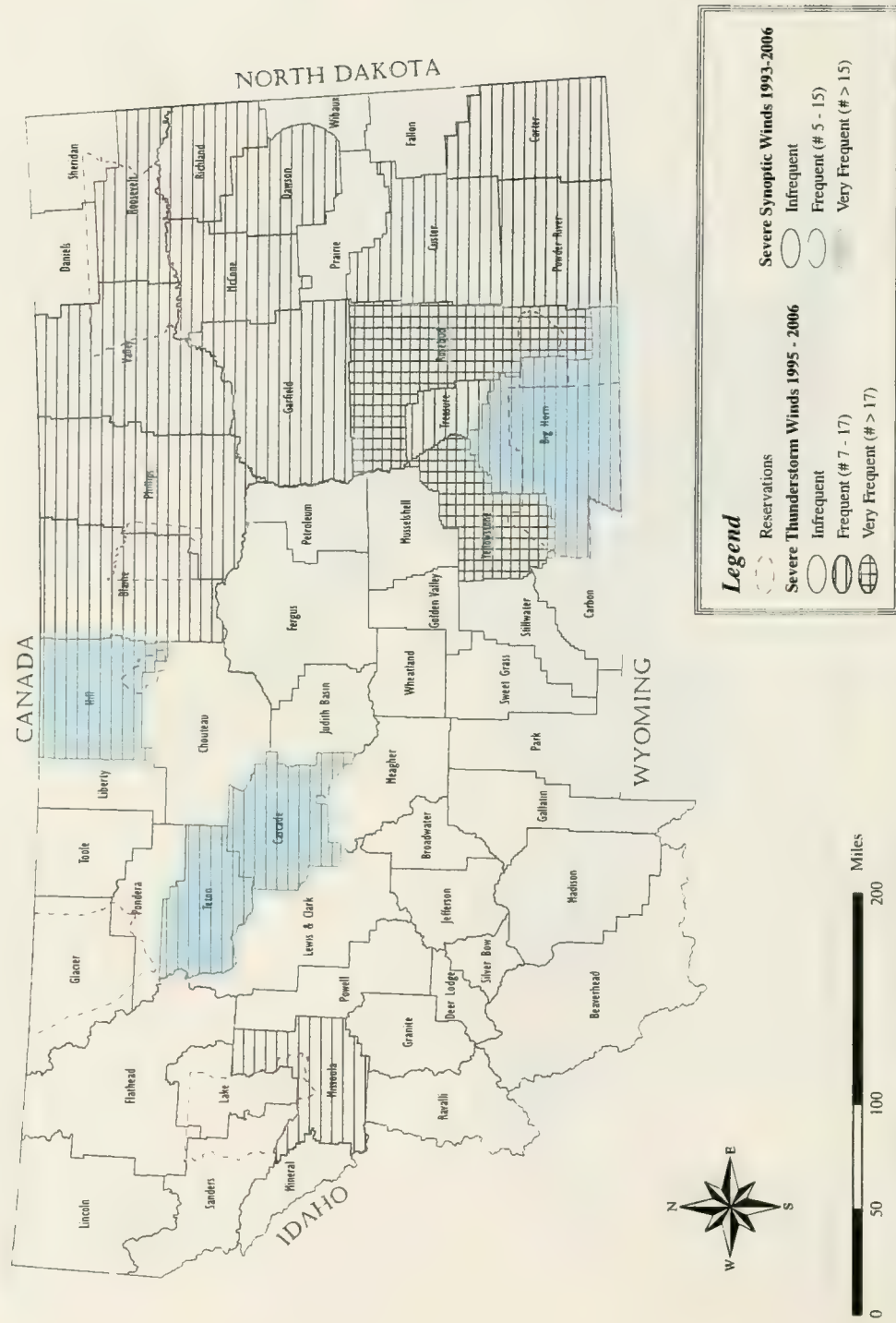


Figure 3.3.10-4

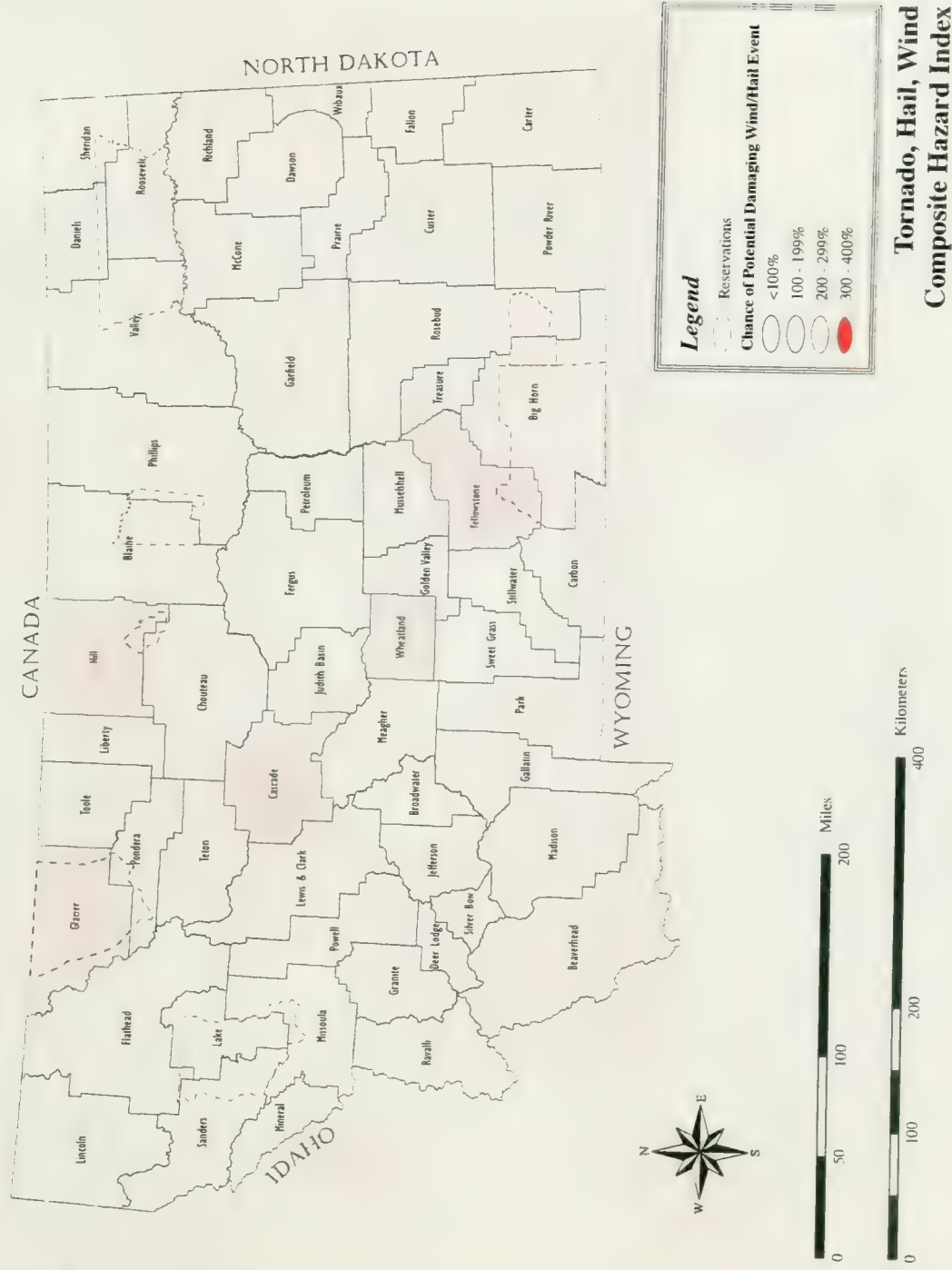


Figure 3.3.10-5 Hazard Risk Map: Thunderstorm, Hail, Wind and Tornado

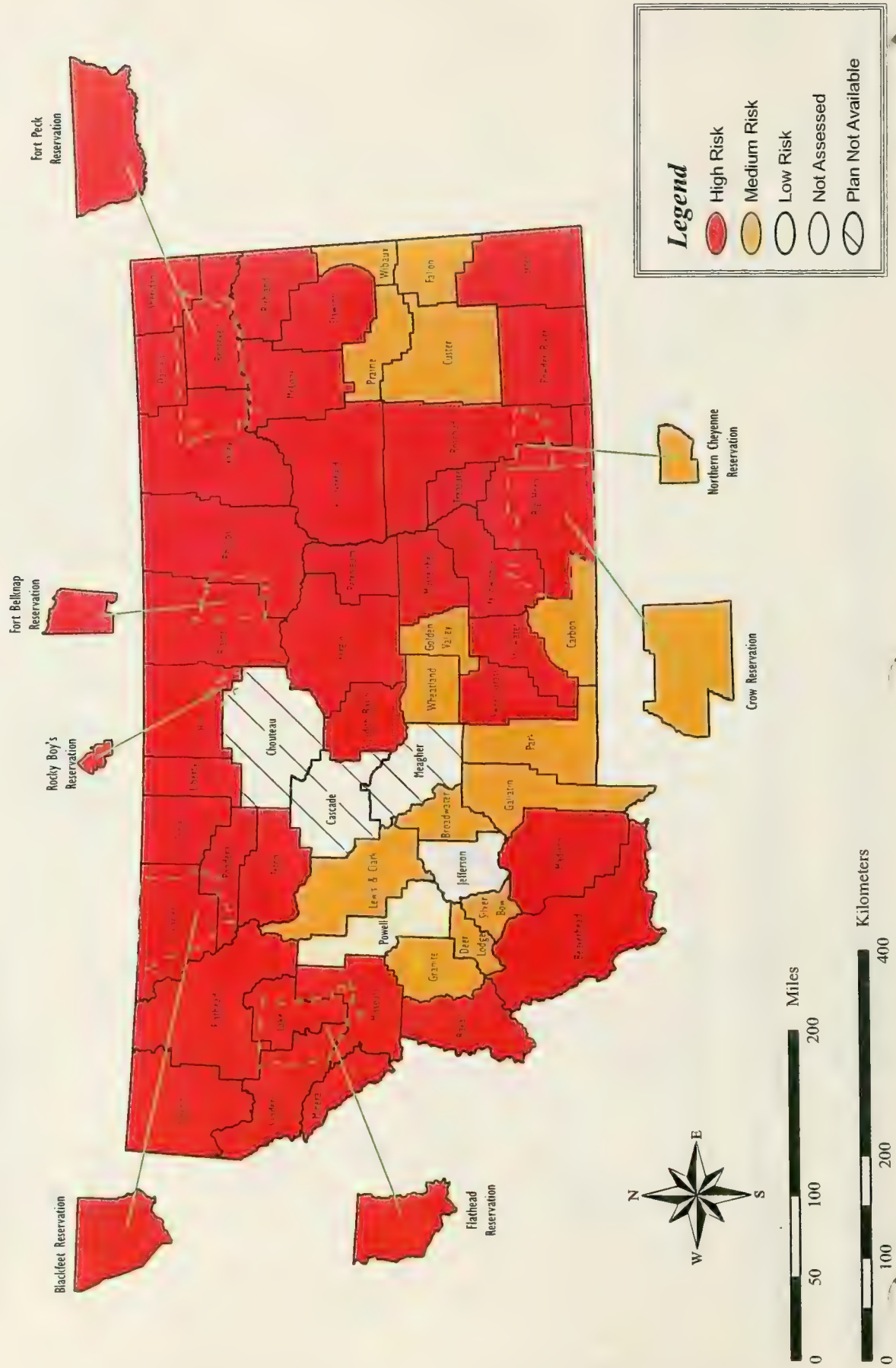


Table 3.3.10-8 presents a summary of potential loss estimates due to severe summer storms as calculated in the Local PDM Plans. Wind, hail and tornado loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.10-8** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Table 3.3.10-8 Potential Losses from Local Plans: Wind-Hail-Tornadoes

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	Moderate	Moderate	Low	1
1	Flathead County	\$337,000	Moderate	Low	8
1	Flathead Reservation	NA	NA	NA	
1	Granite County	\$352,000	Moderate	Moderate	1
1	Lake County	NA	NA	NA	
1	Lincoln County	NA	NA	NA	
1	Mineral County	\$500,000-\$1 million	High	NA	10
1	Missoula County	\$500,000-\$1 million	High	NA	10
1	Powell County	Medium	Medium	NA	10
1	Ravalli County	\$500,000-\$1 million	Moderate	NA	10
1	Sanders County	NA	NA	NA	
1	Silver Bow County	\$337,000	Low	Low	1
2	Blackfeet Reservation	\$122,666	3.3	NA	2
2	Blaine County	\$1,242,927	24.5	NA	2
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	\$173,730	3.9	NA	2
2	Glacier County	NA	NA	NA	
2	Hill County	\$3,363,667	60	NA	2
2	Liberty County	Medium	Medium	NA	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	\$393,027	11.3	NA	2
2	Teton County	NA	NA	NA	
2	Toole County	Medium	Low	NA	11
3	Beaverhead County	\$18,500,000	477.6	NA	5
3	Broadwater County	\$350,000	Moderate	Low	1
3	Gallatin County	Moderate	Moderate	Moderate	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	NA	NA	NA	
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	Moderate	Moderate	Moderate	1

Table 3.3.10-8 Potential Losses from Local Plans: Wind-Hail-Tornadoes

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
3	Sweet Grass County	NA	NA	NA	
4	Carter County	Moderate	Low	Moderate	12
4	Custer County	Moderate	Moderate	NA	13
4	Dawson County	\$1,000,000	NA	NA	8
4	Fallon County	\$50,000	NA	Millions	8
4	Garfield County	\$156,150	396	Moderate-High	1
4	McCone County	\$1,600,000	Moderate	\$500,000	3
4	Powder River County	\$269,100	614	Moderate-High	1
4	Prairie County	NA	NA	Millions	3
4	Richland County	\$500,000	Moderate	\$1,000,000	3
4	Wibaux County	\$250,000	Low	\$250,000	3
5	Big Horn County	\$500,000	Moderate	\$500,000	3
5	Carbon County	\$163,250	NA	NA	8
5	Crow Reservation	Hundreds of thousands	Moderate-High	Hundreds of thousand	3
5	Golden Valley County	\$86,981	1.63	NA	2
5	Musselshell County	\$492,134	8.81	NA	2
5	Northern Cheyenne Reservation	Hundreds of thousands	Moderate	Hundreds of thousands	3
5	Rosebud County	Moderate	Moderate	Moderate	1
5	Stillwater County	\$440,000	NA	NA	8
5	Treasure County	Moderate	Moderate	High	1
5	Wheatland County	\$255,124	4	NA	2
5	Yellowstone County	NA	NA	NA	
6	Daniels County	\$239,501	3.5	NA	2
6	Fergus County	NA	4	7	4
6	Fort Peck Reservation	\$2,813,364	70.4	NA	2
6	Judith Basin County	\$286,000	3.3	NA	2
6	Petroleum County	NA	NA	NA	
6	Phillips County	\$1,299,495	19.8	NA	2
6	Roosevelt County	\$1,725,008	45.3	NA	2
6	Sheridan County	\$572,642	8.4	NA	2
6	Valley County	\$4,288,980	59.1	NA	2

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan
 Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

3.3.10.4.3 Vulnerability of State Property

State property that has suffered damage from extreme wind, hail, or thunderstorms is shown in **Table 3.3.10-9**. The claim record was only available for the period of July 1, 1999 through June 10, 2004.

Table 3.3.10-9 Loss Claims for State Facilities Caused by Extreme Weather (Hail and Wind)

Claim ID	Agency	Location	Cause of Loss	Date of Loss	Request	Indemnity
P2096	University System	Bozeman	Extreme Weather-Hail	7/3/1998	\$25,000	\$48,112
P-3496	DNRC		Extreme Weather-Hail	7/7/1998		\$1,462
P-7547	Public Health		Extreme Weather-Hail	6/20/1999	\$80,141	\$101,904
P-11706	Transportation	Havre	Extreme Weather-Hail	6/8/2000		
P-13422	University System	Bozeman	Extreme Weather-Hail	6/30/2001	\$4,077	
P-13283	Fish, Wildlife & Parks		Extreme Weather-Hail	7/22/2001	\$2,200	
P-14519	University System	Bozeman	Extreme Weather-Hail	8/22/2002		
P-15612	Commerce		Extreme Weather-Hail	6/20/2003		
P-15292	Commerce		Extreme Weather-Hail	6/20/2003		
P-14176	Administration		Extreme Weather-Hail	1/6/2004		\$45,489
P2847	University System	Billings	Extreme Weather-Wind	7/27/1998		\$55,107
P-98-024	Transportation	Butte	Extreme Weather-Wind	12/26/1997		\$8,142
P-2460	Fish, Wildlife & Parks		Extreme Weather-Wind	7/10/1998		
P-4579	Fish, Wildlife & Parks		Extreme Weather-Wind	11/27/1998		\$785
P-5343	University System	Helena	Extreme Weather-Wind	2/3/1999	\$63,000	\$135,789
P-8163	Multiple Agencies		Extreme Weather-Wind	8/14/1999	\$150,000	\$150,992
P-9052	University System	Bozeman	Extreme Weather-Wind	9/24/1999	\$2,500	\$3,517
P-9152	Multiple Agencies		Extreme Weather-Wind	10/31/1999	\$10,000	\$42,404
P-8891	University System	Bozeman	Extreme Weather-Wind	4/4/2000	\$3,000	\$2,132
P-11581	University System	Bozeman	Extreme Weather-Wind	6/8/2000		\$6,687
P-11637	University System	Bozeman	Extreme Weather-Wind	7/3/2000	\$1,000	\$16,220
P-11867	University System	Bozeman	Extreme Weather-Wind	9/1/2000		\$12,704
P-12965	University System	Bozeman	Extreme Weather-Wind	4/20/2001		\$24,651
P-13078	Corrections	Deer Lodge	Extreme Weather-Wind	5/5/2001		\$20,637
P-13470	Corrections	Miles City	Extreme Weather-Wind	7/1/2001		
P-13201	Education	Great Falls	Extreme Weather-Wind	7/12/2001		
P-13548	University System	Bozeman	Extreme Weather-Wind	7/28/2001	\$1,533	\$533
P-13975	Livestock		Extreme Weather-Wind	4/14/2002		
P-14174	Corrections	Miles City	Extreme Weather-Wind	7/8/2002		
P-14603	University System	Missoula	Extreme Weather-Wind	7/13/2002		\$11,215
P-14209	Transportation	Lewistown	Extreme Weather-Wind	7/14/2002		
P-14183	Transportation	Missoula	Extreme Weather-Wind	7/15/2002		\$6,059
P-14455	Corrections	Miles City	Extreme Weather-Wind	8/16/2002		\$650
P-14329	Fish, Wildlife & Parks		Extreme Weather-Wind	8/16/2002		
P-14327	Fish, Wildlife & Parks		Extreme Weather-Wind	8/16/2002		
P-15248	University System	Havre	Extreme Weather-Wind	6/20/2003		\$149,000
P-15331	Transportation	Missoula	Extreme Weather-Wind	7/7/2003		
P-15607	University System	Bozeman	Extreme Weather-Wind	9/12/2003	\$11,800	
P-15765	University System	Butte	Extreme Weather-Wind	10/28/2003		
P-15739	Education	Great Falls	Extreme Weather-Wind	11/19/2003		
P-15693	University System	Butte	Extreme Weather-Wind	11/19/2003		
P-16370	University System	Billings	Extreme Weather-Wind	7/7/2004		\$4,297

Table 3.3.10-9 Loss Claims for State Facilities Caused by Extreme Weather (Hail and Wind)

Claim ID	Agency	Location	Cause of Loss	Date of Loss	Request	Indemnity
P-16374	Public Health	Glendive	Extreme Weather-Wind	7/11/2004		\$2,977
P-16798	University System	Bozeman	Extreme Weather-Wind	12/20/2004		\$20,762
P-16825	Environmental Quality		Extreme Weather-Wind	12/20/2004		\$2,410
P-18060	Justice-Highway Patrol		Extreme Weather-Wind	6/14/2006		\$3,113
P-18125	University System	Billings	Extreme Weather-Wind	7/11/2006		12,551
P-18310	University System	Missoula	Extreme Weather-Wind	8/7/2006	\$1,646	\$646
P-18230	University System	Bozeman	Extreme Weather-Wind	8/17/2006		\$925
TOTAL					\$355,897	\$891,872

Source: DOA, Risk Management and Tort Defense Division, 2007

State-owned buildings that are considered to be highly vulnerable to tornadoes and extreme wind and hail events are those in counties that have a high frequency of the combined events. **Table 3.3.10-6** identifies the counties/tribal reservations with the greatest frequency of storms based on a matrix combining all types of tornado, wind, and hail storms. Those counties with highest vulnerability are considered those with a composite index greater than 200 or the jurisdictions that have had four or more recorded F1 or greater tornadoes. **Table 3.3.10-10** lists the counties and the State-owned facilities within those counties that are considered highly vulnerable to tornadoes, wind, and hail events.

Table 3.3.10-10 State Building Values in Counties Highly Vulnerable to Tornadoes, Wind and Hail Events

County	Frequency	Building Value	Contents Value	Total Value	State Employee Count
Pondera	456.10%	\$1,530,202	\$600,240	\$2,130,442	57
Cascade	248.15%	\$66,050,195	\$18,126,565	\$84,176,760	689
Wheatland	222.70%	\$1,765,362	\$226,965	\$1,992,327	13
Teton	217.78%	\$937,091	\$505,692	\$1,442,783	40
Lewis and Clark	213.51%	\$326,386,470	\$185,642,670	\$512,029,140	4,946
Yellowstone	206.25%	\$199,860,308	\$75,459,200	\$275,319,508	795
Glacier	205.88%	\$1,807,706	\$511,967	\$2,319,673	53
Valley	176.14%	\$2,940,021	\$1,882,770	\$4,822,791	113
Hill	159.50%	\$90,009,648	\$24,206,091	\$114,215,739	101
Rosebud	133.31%	\$1,509,336	\$434,310	\$1,943,646	36
Custer	129.62%	\$31,324,507	\$11,606,102	\$42,930,609	302
Stillwater	111.59%	\$497,276	\$138,322	\$635,598	36
Lake	98.02%	\$10,924,908	\$3,994,159	\$14,919,067	120
Powder River	82.95%	\$547,620	\$182,908	\$730,528	18
Totals		\$736,090,650	\$323,517,961	\$1,059,608,611	7,319

Source: DOA, Risk Management and Tort Defense Division, 2007

3.3.10.5 Impact of Future Development

Future development will likely have little effect on the vulnerability to severe thunderstorms, tornadoes, or hail. The location of development does not increase or reduce the risk. Development and population growth may in fact improve the television and radio technology available to residents, and therefore, improve the warning capabilities (Gallatin County Hazard Mitigation Plan, 2006).

3.3.10.6 Severe Thunderstorms, Hail, Wind and Tornadoes Data Limitations

To effectively determine vulnerability of State property, data identifying locations of State buildings is necessary. The current Montana Department of Administration, Risk Management and Tort Defense PCIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid). In addition, the year built and structural stability are additional factors that would assist in assessing the vulnerability to state buildings.

National Weather Service data has improved significantly in the past decade, however, events are typically only recorded if observed by a weather station or reported to the local NWS office. In a state as rural as Montana, the data will therefore be somewhat dependent on event location (in a populated area versus an unpopulated area) and limited in that respect.

3.3.10.7 Severe Thunderstorms, Hail, Wind and Tornadoes References

Curran, E.B., R. L. Holle and R. E. Lopez, 1995. Lightning Fatalities, Injuries and Damage Reports in the United States, 1959-1994: National Weather Service, Scientific Services Division, Ft Worth, TX. NOAA tech memorandum NWS SR-193.

http://www.crh.noaa.gov/pub/ltg/lightning_statistics.html#USA_map_casualties

Federal Emergency Management Agency (FEMA), 2004. Backgrounder: Thunderstorms and Lightning. <http://www.fema.gov/hazards/thunderstorms/thunder.shtm>

Gallatin County Hazard Mitigation Plan, 2006.

Montana Department of Administration (DOA), Risk Management and Tort Defense Division, 2007. Database of State facility building and content values and loss claims.

Montana Disaster and Emergency Services (MDES), 2007. Federal and State Declared Disasters.

National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC), 2007. Storm Events database.

<http://www4.ncdc.noaa.gov/cgi-win/wwcqi.dll?wwEvent~Storms>

National Oceanic and Atmospheric Administration (NOAA), Storm Prediction Center, 2007. <http://www.spc.noaa.gov/efscale/>

National Weather Service (NWS), 2004. Billings and Great Falls Weather Forecast Offices. <http://www.wrh.noaa.gov/Billings/questions/q27.shtml> ; and <http://www.wrh.noaa.gov/Greatfalls/txf.php?TEXT+precipcomps.html>.

Tornado Project Online (TPO), 2007. <http://www.tornadopproject.com/>
<http://www.tornadopproject.com/fujitascale/fscale.htm>

3.3.11 Wildland and Rangeland Fires

Wildland and rangeland fires are hazards that impact Montana every year. In mild fire seasons, there may be relatively small timber and crop resource losses. In extreme years, there can be resource devastation, habitat destruction, structure losses and deaths. Historically, fire has been an integral part of forest and grassland regeneration. Fire plays an important role in the growth and generation of healthy forest and grassland habitats.

A **wildland or rangeland fire** is an uncontrolled fire, a term which includes grass fires, forest fires, and scrub fires, be they man caused or natural in origin. The **wildland/urban interface (WUI)** is defined as the zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuel.

3.3.11.1 Background

- Since 1933, 39 wildland fire fatalities have occurred in Montana. Twenty of these deaths were from burnovers (such as the Mann Gulch Tragedy), seven were in aircraft crashes, five from falling snags, three from training accidents, two in motor vehicle accidents, one from hypothermia, and one from a heart attack.
- Forest fuels are of primary concern in Western Montana where crown fire potential is high in many areas, including some areas along the wildland/urban interface. In the valleys and agricultural areas of western Montana, sagebrush and dry grass may also provide sufficient fuels for wildfires.
- Dry grass, associated with rangeland and farmland Conservation Reserve Program (CRP), is a primary fuel for eastern Montana wildfires. The rate of fire spread varies directly with wind speed. The windy conditions typical to the region can cause wildfires to spread rapidly. In addition, eastern Montana has areas of ponderosa pine, sagebrush, and other fuels subject to wildfires.
- As residential areas expand into relatively untouched wildlands, people living in the WUI are increasingly threatened by forest fires. Protecting structures in the wildland from fire poses special problems and can exhaust firefighting resources.
- Montana Department of Natural Resources and Conservation (DNRC) data for fire starts from 1997 through 2006 show 39 percent of wildfires were started by lightning and 61 percent were human caused. Sources of human caused fires include debris burns (28 percent); campfires (22 percent); equipment caused fires (7 percent); and railroad starts (6 percent).
- Montana DNRC fire report data shows that 50 percent more fires occurred in WUI than non-WUI areas during the 1996-2006 period. Within the WUI areas, 64 percent of the fires were human caused. Fires in the WUI cost an average 46 percent more to suppress than non-WUI fires.
- If heavy rains follow a major fire in steep terrain, other natural disasters can occur, including landslides, mudflows, and floods. Once ground cover has been burned away, little is left to hold soil in place on steep slopes and hillsides.
- Wildland fire is part of the natural ecological process of many ecosystems. The effects of fire can retard or accelerate the natural development of plant communities, alter species diversity, change nutrient flows, and interact with other physical, chemical, and biological systems. Without wildland fires, the ecological health of many forests, rangelands, and wilderness areas decline.
- Wildland fires occur naturally and are one of the many natural sources of airborne particulate matter (tiny particles such as dust, soot, etc.) Particulate matter is the main pollutant of concern from smoke because it can lead to serious health problems. Smoke can also adversely affect the clarity (visual range) of our air.

Sources: NIFC, 2007; FEMA, 2004; Montana DNRC, 2007c.

3.3.11.2 History of Wildland and Rangeland Fires in Montana

Wildland and rangeland fires occur every year; they are part of the normal vegetative cycle for forest and grasslands in the state. The frequency at which they occur depends on the forest and vegetation type and the prevailing weather conditions. Historically, vegetation types influenced the fire recurrence intervals, but fire regimes have been altered through fire suppression and changes in the landscape. Fire suppression has increased the amount of fuels available to burn and decreased the separation of fuels, resulting in greater undergrowth and denser vegetation. These changes have increased fire severity and frequency, compared to the fire regime prior to the twentieth century. An added factor in fire recurrence is the weather and drought, including extended periods of low precipitation, insect infestation, and heat that increase the potential severity of a fire season. When these conditions mix with high winds, low humidities, high temperatures, and/or dry lightning storms, the fires can be devastating.

By all historical records, the Great Idaho fire of 1910 in northern Idaho and western Montana was the largest forest fire in American history. The fire burned 3 million acres, killed 86 people, destroyed numerous towns in northern Idaho and western Montana, and by some accounts, most of the destruction occurred in 6 hours. The hurricane winds of August 20 and 21, 1910 turned numerous fires scattered throughout the region into a blow-torch. The fire occurred when the US Forest Service was a fledgling agency that lacked the personnel, equipment, and communications to effectively address wildfire. Even with today's technology and resources devoted to wildland fire fighting, that magnitude of fire could occur again, given similar conditions.

Since 1988, Montana has experienced an increase in the size and intensity of fires. The Greater Yellowstone Fire of 1988 covered 2.3 million acres, employed an estimated 25,000 firefighters, and cost nearly \$120 million for fire suppression. One firefighter and one pilot died and structure losses were estimated at \$3 million (YPN, 2004). Fires in western Montana in 2000, 2003 and 2006 were again devastating, burning 1.2 million acres in 2000, 730,000 acres in 2003, and 1.04 million acres in 2006 (Montana DNRC, 2007a).

Grassland fires in eastern Montana have been equally as devastating. In July 1999, the Fishel Creek Fire threatened the town of Musselshell. The fire burned 33,000 acres, one home and threatened the evacuation of Musselshell. Later that same year, a grassfire burned 18,000 acres and a portion of the town of Outlook, causing \$4 million in damages. In all, about 105,000 acres burned in five hours in eastern Montana that night. In July 2003, the Missouri Breaks Complex in eastern Garfield County burned 130,927 acres and destroyed eight structures and 610 miles of fence.

Table 3.3.11-1 lists some of some of the most serious forest fires in Montana history. Some were significant because of their size, others because of the value of the resources lost or the number of lives lost. Many other fires, too many to mention, have affected the lives and property of Montanans. **Table 3.3.11-2** shows the total number of fires and acreage burned by year in Montana.

Table 3.3.11-1 Historically Significant Wildland Fires in Montana

Date	Name	Location	Acres	Significance	Suppression Costs
1910	Great Idaho	Idaho and Montana	3,000,000	85 lives lost	
1949	Mann Gulch	Montana	4,339	13 smokejumpers killed	
1988	Greater Yellowstone National Park	Montana, Idaho and Wyoming	2,281,800	Large amount of acreage burned; 52 buildings destroyed or damaged.	\$120 Million
1988	Canyon Creek	Montana	250,000	Large amount of acreage burned	
2000	Bitterroot Complex and others	Montana, Idaho, Alaska, Oregon, Washington, Wyoming	Nationwide 8,000,000; Montana 1,160,145	Large amount of acreage burned	\$2.1 Billion nationwide
2003	Various Montana fires	Montana	378,000	5 residences and 3 buildings burned, 2,800 buildings threatened	\$168.6 Million in Montana
2006	Derby/Jungle Fires	South of Livingston and Big Timber	237,000	26 homes, 20 outbuildings	\$20 million in Montana

Source: NIFC, 2004; USDA Forest Service, 2003; NOAA-NCDC, 2007; FEMA, 2004

Table 3.3.11-2 Fire and Burned Acreages in Montana by Year

Year	Fires	Acres	Year	Fires	Acres
1991	1,496	122,530	1999	1,932	87,569
1992	1,500	32,787	2000	2,802	1,160,145
1993	670	6,055	2001	1,463	146,819
1994	2,743	281,430	2002	1,372	119,309
1995	1,113	22,171	2003	2,326	736,809
1996	1,836	246,498	2004	1,447	18,445
1997	882	9,731	2005	1,316	103,294
1998	1,781	117,090	2006	2,302	1,047,118

Source: Montana DNRC, 2007a

3.3.11.3 Declared Disasters and Emergencies from Wildland and Rangeland Fires

Requests for public assistance for wildland and rangeland fires can be from the State and/or Federal level. The Governor of Montana may declare an Executive Order (EO) that will permit the use of State funds or activation of Montana National Guard. FEMA may authorize Fire Management Assistance Grants (FMAG), formerly Fire Suppression Assistance (FSA), to local and State agencies for fire suppression. These funds are exclusive of other firefighting costs on Federal land by Federal agencies. In extreme fire years, the Governor may request a Presidentially Declared Disaster for a wildland fire. This has occurred twice: in 1988 for most of the state; and in 2000 for three counties. **Table 3.3.11-3** shows wildfire disasters or emergencies declared in Montana.

Table 3.3.11-3 Montana Disaster Declarations from Wildfire

Date	Event	Federal	State	Local
August 1, 1979	Forest Fires. National Guard Activation		\$8,411	
August 1988	Wildland Fires. All counties in the State.			
August 1, 1990	Wildland Fires (EO 10-90). Broadwater County. National Guard Activation.		\$7,190	\$24,205
	Department of State Lands		\$83,252	
November 1, 1990	Wildland Fires (EO 15-90). National Guard Activation. Beartooth Complex, Lewis & Clark County.			
November 1, 1990	Wildland fire (EO 17-90). Turkey Fire, No claim submitted.			
May 1, 1991	Wildland Fires (EO 05-91) 16 Counties and Department of State Lands			
June 1, 1991	Wildland Fires (EO 10-91) 16 Counties and Department of State Lands			
October 1, 1991	Wildland Fires (EO 31-91). All counties in the State.			
October 1, 1991	Wildland Fires (EO 33-91). Blaine County		\$49,882	
March 1, 1992	Wildland Fires (EO 06-92). Teton and Cascade Counties			
August 1, 1992	Wildland Fires (EO 15-92). 12 Counties			
July 27, 1994	Wildland Fires (EO 12-94). Lincoln, Flathead, Sanders and Lake Counties. Activation of Montana National Guard.			
July 27, 1994	Wildland Fires (EO 13-94). 9 Counties. Activation of Montana National Guard.			
August 10, 1994	Wildland Fires (EO 14-94). 16 Counties. Activation of Montana National Guard.			
August 16, 1994	Wildland Fires (EO 15-94). 13 Counties. Activation of Montana National Guard.			
	FEMA-MT-2111-FSA; Little Wolf Fire, Flathead County	\$2,887,129		
	FEMA-MT-2110-FSA; Wilderness Complex Fire, Lincoln County	\$16,959		
September 9, 1994	Wildland Fires (EO 19-94). 42 Counties. Activation of Montana National Guard.			
August 10, 1996	Wildland Fires (EO 20-96). 12 Counties. Activation of Montana National Guard.		\$11,332	
August 16, 1996	Wildland Fires (EO 21-96). All counties in the State. Activation of Montana National Guard.		\$151,644	
September 5, 1996	Wildland Fires (EO 23-96). 16 Counties. Activation of Montana National Guard.		\$3,710	
September 2, 1998	Wildland Fires (EO 15-98)		\$46,963	
July 26, 1999	Wildland Fires (EO 10-99). 32 Counties and activation of Montana National Guard. FEMA-2266-FSA-MT: Fishel Creek Complex Fire, Musselshell County	\$580,729	\$388,150	
November 5, 1999	Wildland Fire (EO 17-99) Disaster Declaration for the Town of Outlook. Railroad paid for all costs incurred.			\$126
July 24, 2000	Wildland Fires (EO 17-00). 12 Counties and activation of Montana National Guard. FEMA-2314-FSA-MT: Broadwater, Lewis & Clark, Jefferson, Meagher, Gallatin Counties	\$23,568,300		\$128,812
July 27, 2000	Wildland Fires (EO 18-00). All counties in the State and activation of Montana National Guard. FEMA-2317-FSA-MT. Deer Lodge, Granite, Mineral, Missoula, Powell, Ravalli, and Silver Bow Counties.	\$13,339,160		\$38,516

Table 3.3.11-3 Montana Disaster Declarations from Wildfire

Date	Event	Federal	State	Local
	FEMA-2318-FSA-MT. Beaverhead and Madison Counties.	\$143,900		\$4,807
	FEMA-2320-FSA-MT. Flathead, Lake, Lincoln and Sanders Counties.	\$5,361,546	\$5,640	\$40,378
August 16, 2000	Wildland Fires (EO 20-00). All counties in the State and activation of MT Nat'l Guard.			
	FEMA-1340-DR-MT: 48 counties and 6 Indian nations.	\$11,579,000		
	FEMA-2321-FSA:	\$91,940		
	FEMA-2326-FSA:	\$70,842	\$21,483	\$36,150
August 16, 2001	Wildland Fires (EO 20-01). 19 Counties and activation of the Montana National Guard.			
September 3, 2001	Wildland Fires (EO 22-01). 22 Counties and activation of the Montana National Guard.			
July 18, 2003	Wildland Fires (EO 14-03). All counties in the State and activation of MT Nat'l Guard.			
	FEMA-2483-FM-MT. Missouri Breaks Complex, Garfield County.	\$256,726	\$76,690	\$8,885
	FEMA-2484-FM-MT. Robert Fire, Flathead County.	\$420,963	\$115,082	\$25,240
	FEMA-2485-FM-MT. Wedge Canyon Fire, Flathead County.	\$351,321	\$6,730	\$110,377
August 7, 2003	Wildland Fires (EO 16-03). All counties in the State and activation of MT Nat'l Guard.			
	FEMA-2488-FM-MT, Hobbie Fire, Sweet Grass and Stillwater Counties.	\$1,094,812	\$334,807	\$30,130
	FEMA-2489-FM-MT, Cherry Creek Fire, Sanders County.	\$3,865	\$769	\$519
	FEMA-2490-FM-MT, Mineral & Missoula Fire Zone & Cooney Ridge Fire Complex, Mineral, Missoula and Ravalli Counties	\$9,044,295	\$2,944,971	\$69,794
	FEMA-2492-FM-MT, Lincoln Complex, Lewis & Clark and Powell Counties	\$740,657	\$243,476	\$3,410
	FEMA-2494-FM-MT, Flathead Fire Zone, Flathead County	\$637,540	\$130,470	\$82,043
August 4, 2005	Wildland Fires (EO 16-2005). Fire bucket training w/ MT Nat'l Guard.		\$32,503.41	
July 11, 2006	Wildfires (EO 34-06). Activation of MT Nat'l Guard due to threat of wildfire.			
August 1 2006	Wildfires (EO 36-06). Activation of MT Nat'l Guard due to threat of wildfire.			
August 21, 2006	Wildfire (EO 39-06). Statewide disaster.			
	FEMA-2652FM-MT- Sanders Fire- Stillwater County			
	FEMA-2669-FM-MT- Emerald Hills Fire- Yellowstone County			
	FEMA-2671-FM-MT Derby Fire-Stillwater & Sweetgrass Counties			
Total Costs		\$56,850,524	\$4,657,515	\$469,773

Sources: MDES, 2007

Wildfires have a profound effect on the forest product industry and recreational businesses. The U.S. Small Business Administration (SBA) can make declarations to provide assistance to businesses that are directly affected by forest fires. The SBA issued the following disaster declaration in 2003:

- **2003 SBA Declaration #9W74 – Forest Fire:** Small Businesses in Beaverhead, Broadwater, Carbon, Cascade, Chouteau, Deer Lodge, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Lake, Lewis & Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweetgrass, Teton, Toole, Wheatland, and Yellowstone Counties are eligible to apply for a low-interest Economic Injury Disaster Loan from the SBA. These loans are available to small businesses that have suffered financial losses as a result of Forest Fires in 2003. These loans cannot address physical damages caused by the disaster (US SBA, 2004).

Photo 3.3.11-1

Granite Creek, Montana, August 21, 2003 -- Safety Officer Tom Nash from Virginia directs a firefighter crew bus through an area where fires had advanced. Crews were directed to pull back from the Hopeful 2 fire because high winds caused the fire to run. Photo by Andrea Booher/FEMA



Photo 3.3.11-2

A Ball of Flames Rolls Skyward as Part of the Fridley Fire engulfs a stand of trees Monday, August 20, 2001 between Fridley and Eightmile Creeks southwest of Livingston. Erik Petersen Associated Press.
Source: Montanafires.com, 2004

3.3.11.4 Vulnerability to Wildland and Rangeland Fires

All of Montana is vulnerable in one form or another to wildland and rangeland fires. The probability and severity of fires are highly dependent upon weather conditions and fuel conditions and thus will change from year to year. Fire is predicated on drought conditions, and Montana's forests and rangeland are more capable of supporting fires following and during drought years than in "normal" years. Extreme dry periods in Montana have coincided with big fire years. The most severe and extensive fires on record from the first half of the 20th century occurred during periodic droughts, including those of 1889, 1910, 1919, 1926, 1934, and 1967 (Cilimburg and Short, 2003). Longer fire seasons caused by changing climate, lower precipitation, and reduced snow pack have also contributed to the increased level of fire activity in Montana (Montana DNRC, 2007c).

Exclusive of weather, other factors can contribute to the probability and intensity of fires, thus making the fires burn hotter, become harder to suppress, and result in structure loss and loss of life. More than 100 years of excluding fire from forested areas, combined with past land-use practices, have altered the landscape. The resulting changes include a heavy buildup of dead vegetation, dense stands of trees, a shift to species that have not evolved and adapted to fire, and, occasionally, even an increase in non-native fire-prone plants. Increased fuel loads are also attributable to infestations of spruce budworm and pine bark beetle in Montana's forests that have increased tree mortality. Because of these conditions, today's fires tend to be larger, burn hotter, and spread farther and faster, making them more severe, more dangerous, and more costly in human, economic, and ecologic terms (NIFC, 2007).

In central and eastern Montana, rangelands are also vulnerable to wildfires. Most fires burn in grass and sagebrush fuel types and although larger, generally are suppressed more quickly. The USDA Farm Service Agency's (FSA) Conservation Reserve Program (CRP) is a voluntary program available to agricultural producers to help them safeguard environmentally sensitive land. Producers enrolled in CRP establish long-term, resource-conserving covers to improve the quality of water, control soil erosion, and enhance wildlife habitat. In return, FSA provides participants with rental payments and cost-share assistance. Generally, CRP acreage may not be hayed or grazed during the Primary Nesting Season for certain wildlife unless under emergency or managed conditions. Although the CRP may benefit the environment in many respects, the program may also increase the fire risk in nearby communities (USDA, Farm Service Agency, 2007).

3.3.11.4.1 Fire Regimes/Condition Class

To assess the state's vulnerability to fire we need to understand how fire has historically shaped and maintained the forest and grassland ecosystems. Fire is a natural process in Montana's forests and grasslands, but different vegetative communities have different fire patterns or fire regimes. Some vegetative communities burn frequently in low severity fires while others burn less frequently but with great severity and mortality to the dominant overstory vegetation. Schmidt and others (2002) categorized historic fire regimes into the following five general categories:

Type I	0-35-year frequency	low severity
Type II	0-35-year frequency	stand-replacement severity
Type III	35-100+ year frequency	mixed severity
Type IV	35-100+ year frequency	stand-replacement severity
Type V	200+ year frequency	stand-replacement severity

Frequency describes the average number of years between fires. Severity is the effect of the fire on the dominant overstory vegetation. Low severity is when more than 70% of the understory and 90 percent of the overstory vegetation survives. Mixed severity is when there is mixed severity of the overstory and typically resulting in mosaic burn patterns. Stand-replacement severity results in mortality to over 90 percent of the overstory and 80 percent of the understory vegetation (Schmidt and others, 2002).

Ponderosa Pine forests in lower elevations of western Montana are considered Type I fire regimes. Grasslands and rangelands in central and eastern Montana are considered Type II fire regimes, because fire normally burns most of the vegetation. Forests in the upper elevations of western and central Montana that include Subalpine fir and Engleman spruce are considered Type V because fire is infrequent, but when it occurs it results in high mortality.

When land use and fire suppression interrupt historic fire regimes, vegetation densities increase and fire fuels can build-up. These changes can alter the size of fires, the intensity of the fires, and its potential severity. For example, if fire is suppressed in ponderosa pine forests, the understory may begin to support Douglas fir in dense patterns. When fire occurs, the increased fuels generate hotter fires that may result in mortality to ponderosa pines which are normally fire resistant. Changes in these fire patterns are identified as fire condition classes. The greater departure from normal historic fire regimes result in an increasing fire condition class as described below:

- Condition Class 1** Fire regimes are within an historical range and the risk of losing key ecosystem components is low.
- Condition Class 2** Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.
- Condition Class 3** Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range (from Schmidt and others, 2002).

Schmidt and others (2002) mapped the fire condition class across the country in 1 km grid cell size. **Figure 3.3.11-1** shows the Montana portion of the mapping. Please note that this methodology may not accurately represent the conditions in specific locations, but provides a broader picture of the entire state. Local hazard assessments provide greater detail on the specific wildfire hazards in each community.

3.3.11.4.2 Statewide Vulnerability to Wildland and Rangeland Fires

As identified above, all of Montana is vulnerable to fire. In any given year, wildfire can break out in any part of the state and impact rangelands, grasslands, and forests. They can endanger the communities that have developed in the wildland/urban interface and firefighters that must contain and prevent losses. Those areas where land use practices, fire suppression, and/or insect infestations have changed the fire condition class may be more vulnerable to the impacts from fire. Fires in these areas may burn hotter, may be more unpredictable, and have a greater potential for stand replacement severity. These types of fires may also reduce the abilities of firefighters to contain losses and may expose those fighting fires and living near fires to increased risks.

Counties with increased vulnerabilities may be those with high percentages of forest land under Fire Condition Class II and III or those counties with a high percentage of cropland in the federal CRP. **Table 3.3.11-4** identifies counties that have more than 40 percent of total land area mapped as Fire Condition Class II and III. **Table 3.3.11-5** identifies the counties with more than 20 percent of cropland in CRP. These counties are shown on **Figure 3.3.11-2**.

Figure 3.3.11-2 Wildfire Vulnerability

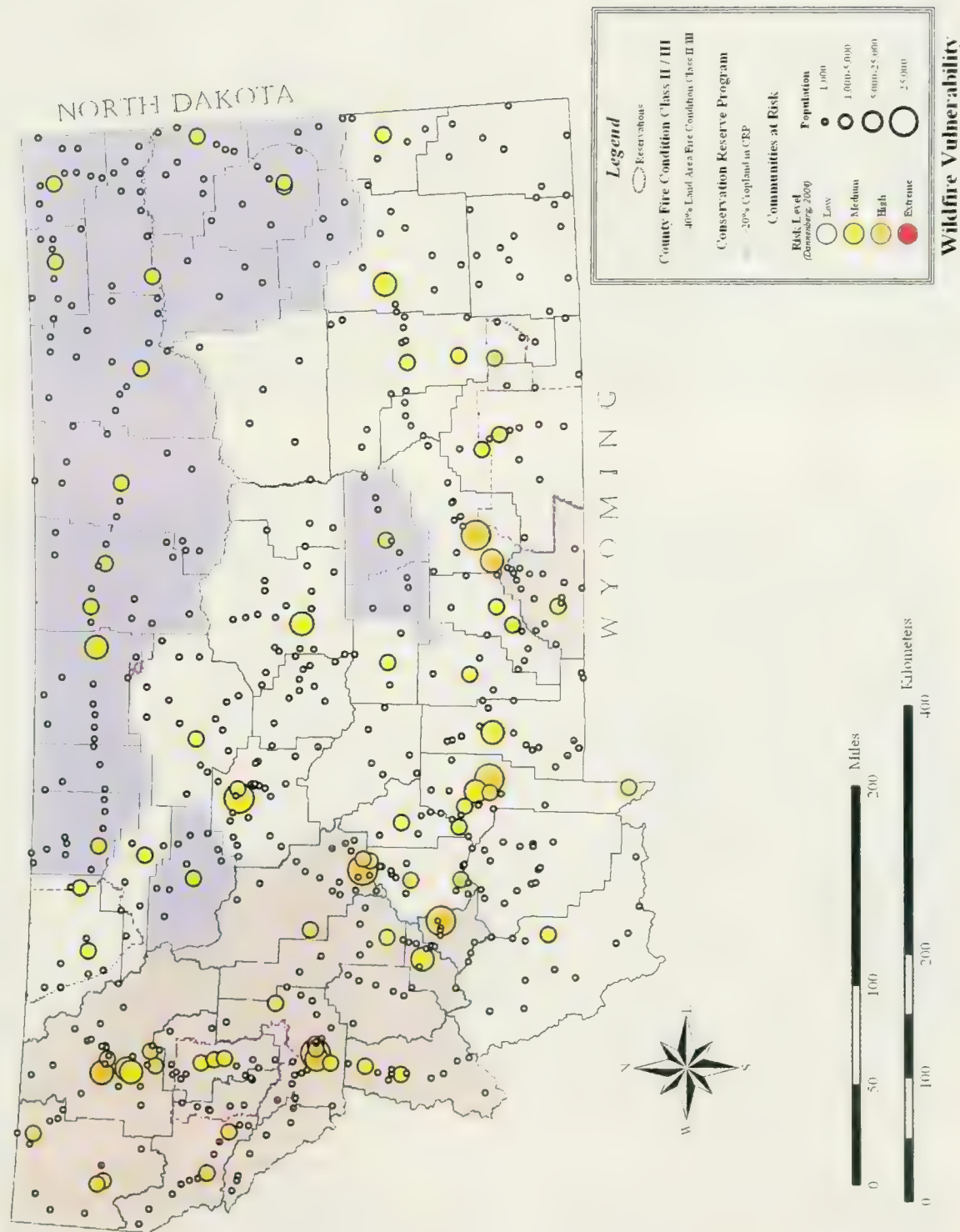


Table 3.3.11-4 Counties with Highest Acreage Class II/III Condition Class

County	County	Condition Class II		Condition Class III	
	Total Acres	Acres	% Area	Acres	% Area
Flathead	3,354,005	1,083,804	32.31%	1,660,054	49.49%
Lincoln	2,344,762	934,800	39.87%	704,745	30.06%
Missoula	1,671,175	892,792	53.42%	474,937	28.42%
Carbon	1,316,784	855,232	64.95%	25,946	1.97%
Ravalli	1,532,324	847,819	55.33%	392,156	25.59%
Sanders	1,780,466	739,339	41.53%	692,883	38.92%
Lewis & Clark	2,232,434	641,980	28.76%	356,573	15.97%
Powell	1,488,960	626,906	42.10%	384,743	25.84%
Granite	1,106,345	569,578	51.48%	258,472	23.36%
Mineral	780,785	353,361	45.26%	232,279	29.75%
Lake	1,055,355	243,399	23.06%	257,237	24.37%
Silver Bow	459,008	176,186	38.38%	55,599	12.11%
Deer Lodge	473,151	170,503	36.04%	45,467	9.61%

Source: Schmidt and others, 2002

Table 3.3.11-5 Counties with >20 Percent Cropland Under CRP

County	County	Cropland	Active CRP Contracts (1992-2008)		
	Total Acres	Total Acres	Acres	% Cropland	% County
Daniels	912,715	591,901	147,250	24.88%	16.13%
Liberty	925,755	627,078	148,880	23.74%	16.08%
Hill	1,865,477	1,218,379	294,671	24.19%	15.80%
Sheridan	1,091,671	703,452	159,696	22.70%	14.63%
Toole	1,244,848	708,175	177,378	25.05%	14.25%
Roosevelt	1,515,444	782,629	178,545	22.81%	11.78%
Teton	1,465,710	611,312	151,206	24.73%	10.32%
Richland	1,344,527	513,575	114,567	22.31%	8.52%
McCone	1,715,096	588,211	140,936	23.96%	8.22%
Wibaux	568,968	171,066	36,766	21.49%	6.46%
Valley	3,237,540	843,151	208,684	24.75%	6.45%
Golden Valley	752,063	190,373	47,303	24.85%	6.29%
Blaine	2,711,308	689,034	164,527	23.88%	6.07%
Dawson	1,523,385	465,004	92,307	19.85%	6.06%
Phillips	3,333,350	631,438	164,510	26.05%	4.94%
Prairie	1,113,873	165,190	40,580	24.57%	3.64%
Musselshell	1,196,012	163,586	39,971	24.43%	3.34%

Source: USDA, Farm Service Agency, 2007

In addition to the above county analysis, the BLM completed a Communities At-Risk Analysis across the state, identifying fire risk factors immediately around Montana communities (Dannenberg, 2004). Data was collected on vegetation, slope, aspect, weather factors, development density, and building materials within a 5-mile radius of 622 towns and cities in Montana. The assessment method was adapted from the

"Wildland/Urban Interface Fire Hazard Assessment Methodology" as developed by the National Wildland/Urban Interface Fire Protection Program, 1998 (Firewise, 2004).

The results of the BLM communities risk assessment showed that 241 of the 622 communities in Montana (38.8 percent) were rated with an extreme or high fire danger rating. These communities and their relative risk to wildfire and rangeland fire are shown on **Figure 3.3.11-2**.

Increased population growth over the past two decades in Montana has resulted in an expanded WUI (**Figure 3.3.11-3**). Fires in these WUI areas have become much larger and burned with greater intensity (Arno, 1996 in Montana DNRC, 2006c). An accumulation of forest and grassland fuels, over-crowded stand conditions, and extended drought have increased the forest's vulnerability to fire from human activities and natural causes. Fires in WUI areas pose extreme risk to human life and property, increase the cost of fire suppression activities, and have significant social, economic, and natural resources impacts.

Figure 3.3.11-3 WUI Designation in Montana

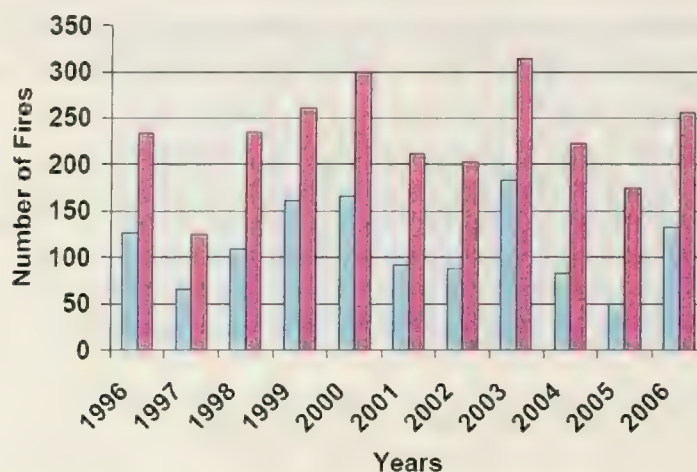
Source: Montana DNRC, 2007c



More fires occur in the WUI than the non-WUI areas. Montana DNRC fire report data shows that through the direct protection program, 50 percent more fires occurred in WUI than non-WUI areas between 1996 and 2006 (**Figure 3.3.11-4**). Within the WUI areas, 64 percent of the fires were human-caused, with the majority of the causes being campfires, debris burning, and miscellaneous. Outside the WUI, only 27 percent of the fires were human-caused. Fires in the WUI cost an average 46 percent more to suppress than non-WUI fires. This increased cost of fire suppression is largely due to the higher costs in the WUI associated with structure protection (Montana DNRC, 2007c).

Figure 3.3.11-4 Number of Fires Occurring in the WUI (red) and Non-WUI (blue) on DNRC Direct Protection (1996-2006)

Source: Montana DNRC, 2007c



3.3.11.4.3 Review of Potential Losses in Local PDM Plans

Figure 3.3.11-5 presents the Wildfire Hazard Risk Map. The colors represent a high-medium-low risk rating based on information in the Local PDM Plans. The gray color indicates this hazard was not assessed in the Local Plan. The hatch pattern indicates the Local Plans were not available for review. For electronic users of the State Plan, clicking on a county or tribal reservation will take you to the Local Plan where further information is available.

Table 3.3.11-6 presents a summary of potential loss estimates due to wildfire as calculated in the Local PDM Plans. Wildfire loss is described in terms of its effect on buildings, society and the economy, where generally:

- Building loss is presented either as a dollar value or a high-moderate-low rating and typically refers to the potential loss to critical facilities in the jurisdiction.
- Societal loss is presented either as the number of lives at risk or as a high-moderate-low rating representing the potential for loss of human life.
- Economic risk is presented as a dollar value or high-moderate-low rating referring to the potential impact to the economy of the local jurisdiction.

References cited in **Table 3.3.11-6** correspond to a description of the method used to calculate potential loss that can be found in *Section 7.14*.

Figure 3.3.11-5 Hazard Risk Map: Wildfire

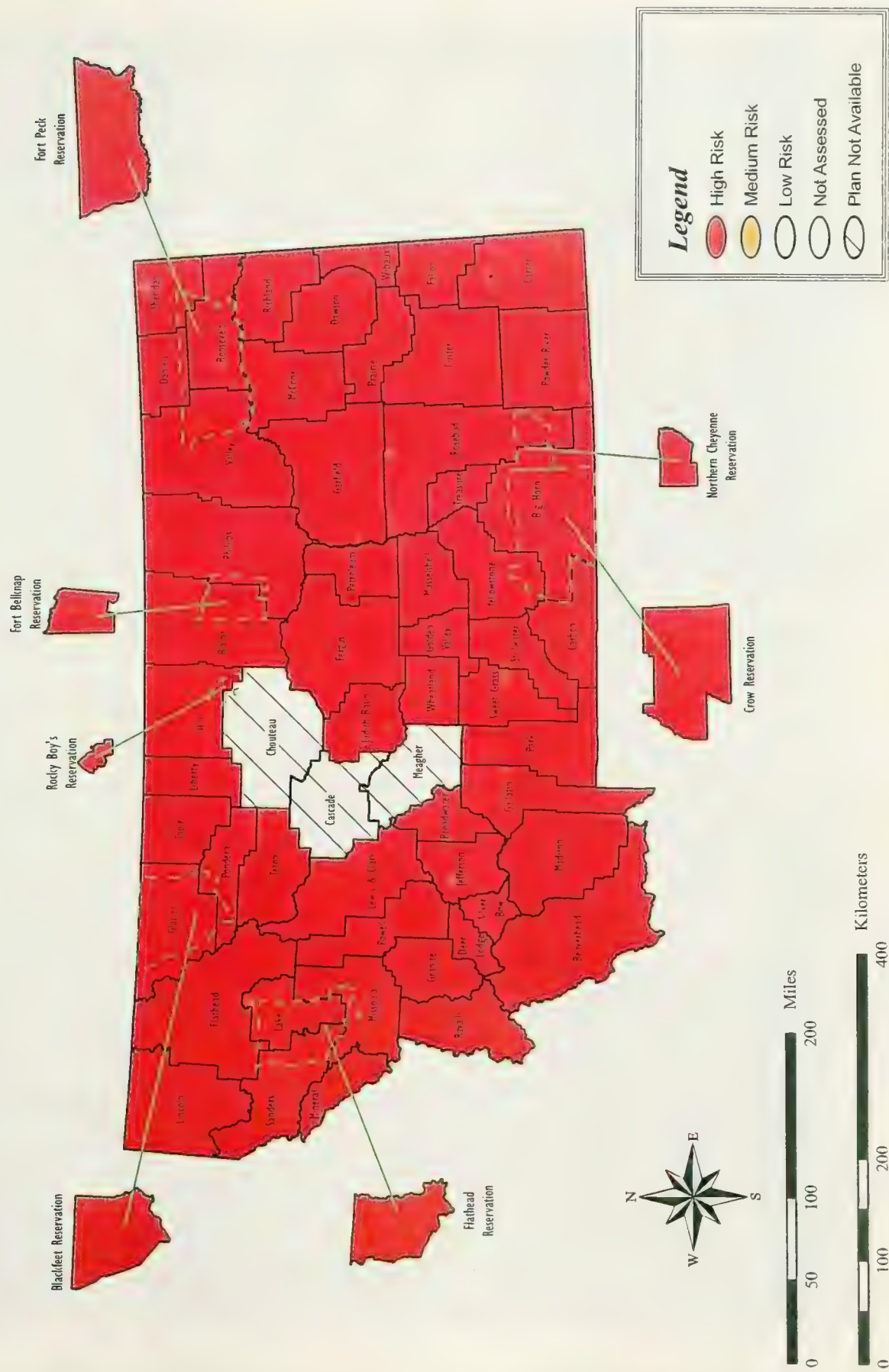


Table 3.3.4-10 Potential Losses from Local Plans: Wildfire

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
1	Deer Lodge County	\$4,500,000	Moderate	Moderate	1
1	Flathead County	\$150,000,000	High	High	8
1	Flathead Reservation	\$103,979,000	3,592	NA	2
1	Granite County	\$8,200,000	Moderate	\$17,300,000	1
1	Lake County	\$103,979,00	3,592	NA	2
1	Lincoln County	2	2	NA	9
1	Mineral County	\$50-\$100 million	High	NA	10
1	Missoula County	\$50-\$100 million	High	NA	10
1	Powell County	Medium	Medium	NA	10
1	Ravalli County	\$100-\$200 million	Very High	NA	10
1	Sanders County	\$14,390,220	2,196	NA	2
1	Silver Bow County	\$50 million	Moderate	High	1
2	Blackfeet Reservation	NA	NA	NA	
2	Blaine County	\$239,891,597	NA	\$29,151,879	2
2	Cascade County	U	U	U	
2	Chouteau County	U	U	U	
2	Fort Belknap Reservation	NA	NA	NA	
2	Glacier County	NA	NA	NA	
2	Hill County	\$532,977,164	NA	\$37,808,000	2
2	Liberty County	Low	Low	NA	11
2	Pondera County	NA	NA	NA	
2	Rocky Boy's Reservation	NA	NA	NA	
2	Teton County	NA	NA	NA	
2	Toole County	Low-Medium	Low	NA	11
3	Beaverhead County	\$867,200,000	35,500	NA	5
3	Broadwater County	\$3,500,000	Moderate	Moderate	1
3	Gallatin County	High	Moderate	Moderate	12
3	Jefferson County	NA	NA	NA	
3	Lewis & Clark County	\$145,000,000	NA	NA	6
3	Madison County	NA	NA	NA	
3	Meagher County	U	U	U	
3	Park County	\$9,400,000	Moderate	Moderate	1
3	Sweet Grass County	NA	NA	NA	
4	Carter County	High	Moderate	High	12
4	Custer County	Moderate	Moderate	NA	13
4	Dawson County	\$453,610	NA	NA	8
4	Fallon County	\$17,542	NA	\$877	8
4	Garfield County	\$4,154,00	228	Moderate-High	1
4	McCone County	\$211,715	NA	High	3
4	Powder River County	\$2,421,900	594	Millions	1
4	Prairie County	NA	NA	\$300,000	3
4	Richland County	\$352,610	Moderate	NA	3
4	Wibaux County	\$200,045	NA	NA	3
5	Big Horn County	\$30,000,000	NA	Severe	3
5	Carbon County	\$44,290,000	High	High	8

Table 3.3.4-10 Potential Losses from Local Plans: Wildfire

DES District	Jurisdiction	Building Loss	Societal Loss	Economic Loss	Reference
5	Crow Reservation	Millions	High	Millions	3
5	Golden Valley County	NA	NA	NA	
5	Musselshell County	NA	NA	NA	
5	Northern Cheyenne Reservation	Millions	Moderate	Millions	3
5	Rosebud County	High	Moderate	High	1
5	Stillwater County	\$14,553,950	NA	\$56,073,541	8
5	Treasure County	High	High	High	1
5	Wheatland County	NA	NA	NA	
5	Yellowstone County	NA	NA	NA	
6	Daniels County	\$9,030,162	121.5	NA	2
6	Fergus County	NA	3	5	4
6	Fort Peck Reservation	\$28,060,758	619.5	NA	2
6	Judith Basin County	NA	NA	NA	
6	Petroleum County	NA	NA	NA	
6	Phillips County	\$185,009,701	NA	\$37,808,000	2
6	Roosevelt County	\$22,415,785	555.2	NA	2
6	Sheridan County	\$16,527,416	214.9	NA	2
6	Valley County	\$32,380,759	416.1	NA	2

Notes: U = Local PDM Plan not available for review; NA = not assessed in Local PDM Plan

Potential loss was computed was not computed in a uniform manner in Local PDM Plans. See number references in Section 7.14 for a description of the methods used to calculate potential building, society and economic loss.

3.3.11.4.4 Vulnerability to State Property

While structure loss can occur from wildland fire, most of the losses are related to timber and crop resources and the potential loss of life. State property that could be vulnerable to wildland fires include leased cropland and State forest property. Leased cropland and grazing leases return approximately \$16.8 million annually to the state. Timber production from state-owned timber tracts returned \$13 million in fiscal year 2006 (Montana DNRC, 2007b). The exposure of leased cropland and timber lands is low, as the return from these properties is relatively small.

State buildings located in counties with a high vulnerability to wildfire are considered to be indirectly exposed to wildfire. Those counties include two universities, the Capitol Complex, and state prison. **Table 3.3.11-7** identifies the structure and content value of state-owned facilities in those counties shown in **Figure 3.3.11-2**.

Table 3.3.11-7 State Building Values in Counties Highly Vulnerable to Wildland Fires

County	Building Value	Contents Value	Total Value	State Employee Count
Carbon	\$1,149,030	\$446,856	\$1,595,886	56
Deer Lodge	\$52,694,044	\$10,429,310	\$63,123,354	684
Flathead	\$38,697,078	\$10,881,240	\$49,578,318	600
Granite	\$404,516	\$196,010	\$600,526	34
Lake	\$10,924,908	\$3,994,159	\$14,919,067	120
Lewis and Clark	\$326,386,470	\$185,642,670	\$512,029,140	4,946

Table 3.3.11-7 State Building Values in Counties Highly Vulnerable to Wildland Fires

County	Building Value	Contents Value	Total Value	State Employee Count
Lincoln	\$4,664,965	\$2,370,170	\$7,035,135	110
Mineral	\$1,116,951	\$531,895	\$1,648,846	49
Missoula	\$683,963,987	\$193,808,935	\$877,772,922	673
Powell	\$103,862,149	\$21,170,003	\$125,032,152	385
Ravalli	\$8,534,537	\$1,931,144	\$10,465,681	174
Sanders	\$1,778,555	\$771,777	\$2,550,332	57
Silver Bow	\$78,449,461	\$23,186,164	\$101,635,625	640
Totals	\$1,312,626,651	\$455,360,333	\$1,767,986,984	8,528

Source: DOA, Risk Management and Tort Defense Division, 2007

3.3.11.5 Impact of Future Development

The wildland-urban interface is a very popular place to live in Montana. Development in the hazard areas has increased in recent years and has amplified the vulnerabilities in the unincorporated parts of the State. Regulating growth in these areas is a delicate balance between protecting private property rights and promoting public safety. Some counties have growth policies recognizing the wildfire threat and emphasizing defensible space, inspection of new development, water supplies, fuels mapping, and Firewise programs (Gallatin County Hazard Mitigation Plan, 2006).

The 2005 Montana legislature passed House Joint Resolution No. 10 which recognized what professionals working in the wildfire arena have been asserting for years: the laws have not kept up with changes in circumstances and technology, population growth, and changes in weather patterns (Kurtz, 2006). During the 2005-2006 interim, a work group endeavored to correct inconsistency, modernize policy, institute policy where none existed, and clarify authority where it had been murky. As a result, the 2007 Montana Legislative session passed a bill specific to wildfire and the wildland-urban interface that may reduce the impact of wildfire and rangeland fire on future development.

The new law (Senate Bill 51), set to take effect on October 1, 2009, is a revision to growth policy and subdivision law that require consideration of wildland fire. The law requires that growth policies include an evaluation of the potential for wildland fire, including whether or not there is need to delineate the WUI or adopt regulations that require defensible space around structures, adequate ingress and egress to and from structures to facilitate fire suppression activities, and/or adequate water supply for fire protection. Senate Bill 51 also amended subdivision regulations to require every county, city and town to reasonably avoid subdivisions where there is danger of injury to health, safety, or welfare by reason of natural hazard, including but not limited to fire and wildland fire. The regulations prohibit subdivisions in these areas unless the hazards can be eliminated or overcome by approved construction techniques or mitigation measures such as requiring sprinklers in certain circumstances or prohibiting cedar shake roofs.

The law engages the Department of Natural Resources and Conservation (DNRC) and the Department of Labor and Industry in developing rules and providing incentives to help cities and counties get ahead of growth in the WUI. This will include identifying best planning and land use practices for WUI development. The new law also requires promotion of forest management activities within and adjacent to the wildland-urban interface and directs the Montana DNRC, to develop by October 2009, rules addressing wildland-urban development

including potential means of enforcement. Senate Bill 51 became law with Governor Schweitzer's signature on May 8, 2007.

3.3.11.6 Wildland and Rangeland Fires Data Limitations

Assessing the wildland and rangeland fire hazard is greatly limited by the data currently available. Wildfires are dependent on so many factors that determining the vulnerability to a community is rather subjective and relies on a complex combination of variables. In addition, in a state such as Montana, with mountains in the west and grasslands to the east, a method to assess one area does not work on another. Therefore, the ability to conduct a comprehensive, statewide assessment is rather limited. In addition, to effectively determine vulnerability of State property, data identifying locations of State buildings is necessary. The current PCIIS building database is not geo-referenced and cannot be effectively related to spatial coordinates except in general locations (by city or zip code centroid).

3.3.11.7 Wildland and Rangeland Fires References

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4.0 MITIGATION STRATEGY

Mitigation goals and objectives serve as the framework for future mitigation funding and project decisions. They shape the long term vision in the State of Montana for hazard mitigation. The prioritization of local project requests and statewide initiatives will be representative of this strategy.

4.1 MITIGATION GOALS, OBJECTIVES AND POTENTIAL ACTIONS

For years, the federal, state, tribal, and local governments, business, organizations, and individuals have spent trillions of dollars recovering from disasters. Mitigation works to reduce those losses, both fiscal and those that cannot be given a price, such as a life or sentimental items, by preventing the losses and even sometimes the disaster. With a comprehensive overview of the hazards that threaten Montana, goals and objectives have been developed to mitigate potential losses from those hazards. These goals represent a global vision and a general direction for mitigation activities. The objectives are more specific and suggest actions that can be taken to meet the objectives.

Mitigation goals and objectives for the 2007 State Plan Update were refined from those goals identified in the 2004 State Plan. Existing goals were reviewed and discussed at both the State and Local stakeholder meetings, and input was received from the public through the on-line survey. At the April 2007 State stakeholders meeting in Helena, existing goals were ranked in order of importance resulting in a re-prioritization of three of the top four goals, as follows:

- **Goal 1** - *Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards* should remain the State's top priority.
- **Goal 2** - *Reduce the Community Impacts of Wildland and Rangeland Fires* (previously Goal 4).
- **Goal 3** - *Increase State's Capability to Provide Mitigation Opportunities* (previously Goal 2).
- **Goal 4** - *Mitigate the Potential Loss of Life and Property from Flooding* (previously Goal 3).

It was also recommended that **Goal 8** – *Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards* be split to include a separate goal for severe summer weather (thunderstorms, wind, hail, and tornadoes), one for hazardous material incidents, and another for historically less frequent hazards (landslides, volcanic eruptions and terrorism-violence). State stakeholders felt that the communicable disease hazard should be profiled in the State Plan Update but acknowledged that other state agencies have emergency action plans that address hazards associated with public health pandemics, livestock disease, and agro-emergencies.

Local stakeholders provided feedback on the wording of mitigation goals, goal prioritization and offered suggestions on new goals. The consensus from the local meetings indicated that:

- Severe summer weather should have a separate goal.
- The goal that formerly read "Increase the State's Capability to Provide Mitigation Opportunities" should be rephrased to *Increase State's Capability **to Provide and Assist Locals** with Mitigation Opportunities*.
- Drought and wildfire should be a higher priority than flooding.
- Communicable disease should be profiled in the State Plan Update

An informal survey was conducted at the local stakeholder meetings to rank the 10 hazards profiled in the 2004 State Plan in order of importance. The consensus within all six districts (**Figure 4.1-1**) was that Goals 1 and 2 (the All Hazard goals) should remain as the State's top priority. The ranking of hazard-specific goals by DES District are presented in **Table 4.1-1**. It should be noted that the hazard ranking was based on input from those individuals present at the local meetings, some of whom were not emergency managers, and may not be consistent with the hazard ranking presented in the Local PDM Plans developed for these areas. The communicable disease hazard was not ranked at the local meetings.

The on-line survey conducted for the State Plan Update also provided input into how the State's mitigation goals should be ranked. A cross-section of the State's population completed the survey. Out of the 200 survey respondents, 41 percent represented a county jurisdiction, 13 percent represented the State, 8 percent represented a federal agency, 5 percent were from a utility, 9 percent were from the general public, and 3 percent represented a tribe. The "other" category included 26 percent of the survey respondents and represented fire districts, cities, the Red Cross, private colleges, and healthcare providers. The survey results indicated the following ranking of the hazard-specific mitigation goals: 1) wildfire; 2) flooding; 3) drought; 4) winter storms; 5) hazardous materials; 6) wind-hail-tornadoes; 7) earthquakes; and 8) historically less frequent hazards. On-line survey results of hazard-specific goal ranking by DES District are presented in **Table 4.1-1**. A goal associated with the communicable disease hazard was not included in the on-line survey.

In consideration of all the various entities that provided input and the local plans that have been approved in the last three years, mitigation goals for the Montana State Plan Update were re-prioritized and/or re-worded as follows:

- **Goal 1** - Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards
- **Goal 2** - Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities
- **Goal 3** - Reduce the Community Impacts of Wildland and Rangeland Fires
- **Goal 4** - Minimize Economic Impacts of Drought
- **Goal 5** - Mitigate the Potential Loss of Life and Property from Flooding
- **Goal 6** - Reduce Impacts from Severe Winter Weather
- **Goal 7** - Reduce Impacts from Severe Summer Weather (Wind, Hail, Tornadoes)
- **Goal 8** - Reduce Losses from Hazardous Material Incidents
- **Goal 9** - Reduce Potential Earthquake Losses in Seismically Prone Areas
- **Goal 10** - Reduce the Likelihood of Communicable Disease Outbreaks
- **Goal 11** - Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards

Although, the goal priorities will not dictate what types of projects are funded, they may help to focus some of the State agencies and demonstrate to federal, state, local, and tribal partners what the key mitigation activities in the various regions of Montana are.

Mitigation objectives for each goal were refined and prioritized based on input received at the stakeholders meetings and via the on-line survey. Mitigation objectives presented in the State Plan Update are consistent with those outlined in the Local PDM Plans, as shown in **Appendices B through G**.

Figure 4.1-1 Montana Disaster & Emergency Services Districts

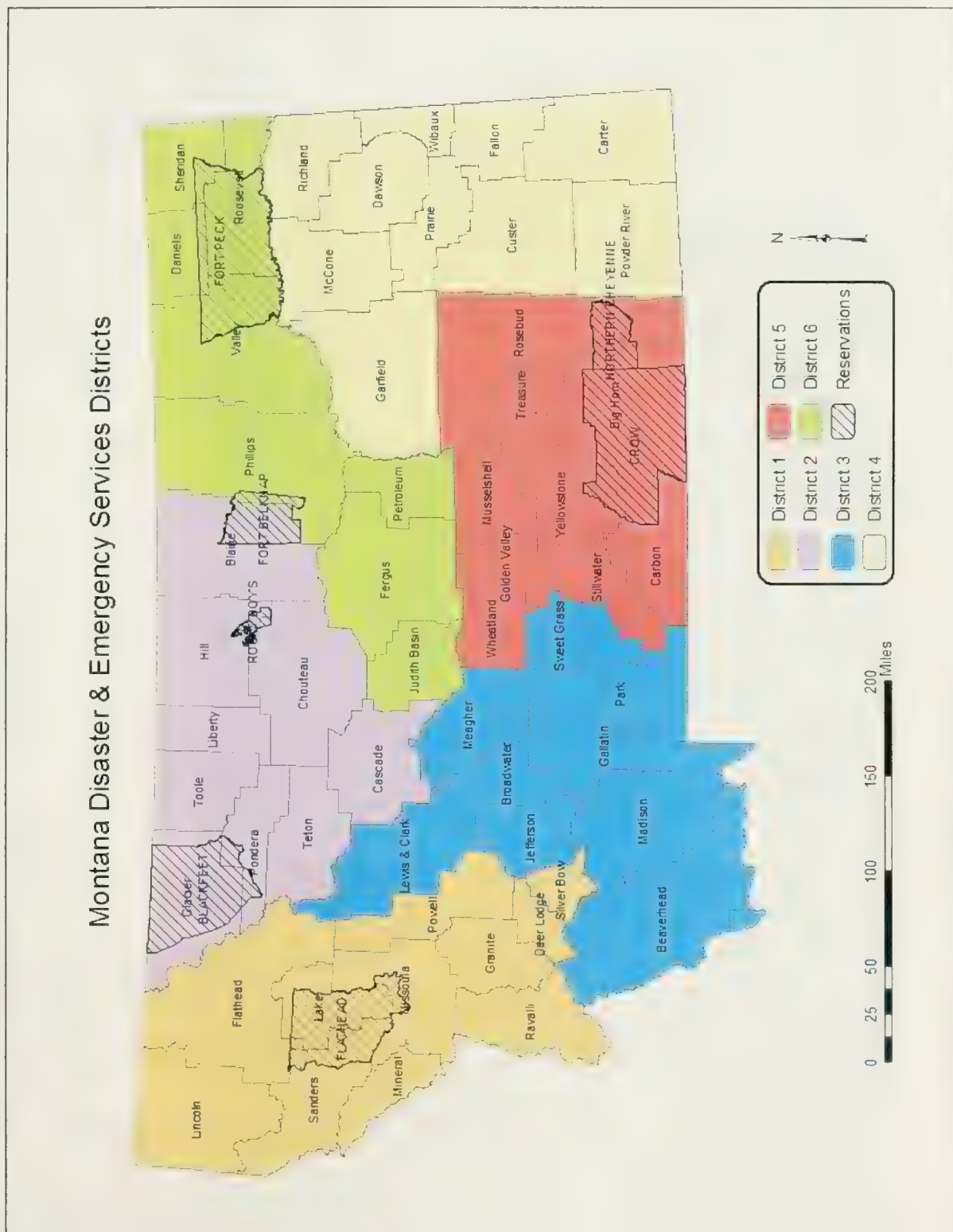


Table 4.1-1 DES District Ranking of Hazard-Specific Mitigation Goals for State Plan

District	Survey Type (# responding)	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
District 1	Local Meeting Survey (17)	Wildfire	Flooding	Haz-Mat	Earthquake	Drought	Wind-Hail- Tornado	Winter Storm
	On-line Survey (33)	Wildfire	Haz-Mat	Flooding	Drought	Winter Storm	Earthquake	Wind-Hail- Tornado
District 2	Local Meeting Survey (16)	Wildfire	Drought	Wind-Hail- Tornado	Flooding	Haz-Mat	Winter Storm	Earthquake
	On-line Survey (22)	Haz-Mat	Wildfire	Winter Storm	Drought	Wind-Hail- Tornado	Flooding	Earthquake
District 3	Local Meeting Survey (26)	Wildfire	Earthquake	Haz-Mat	Flooding	Winter Storm	Drought	Wind-Hail- Tornado
	On-line Survey (52)	Wildfire	Earthquake	Flooding	Haz-Mat	Drought	Winter Storm	Wind-Hail- Tornado
District 4	Local Meeting Survey (10)	Winter Storm	Flooding	Wind-Hail- Tornado	Drought	Wildfire	Haz-Mat	Earthquake
	On-line Survey (31)	Winter Storm	Wind-Hail- Tornado	Wildfire (tie)	Flooding (tie)	Drought (tie)	Haz-Mat	Earthquake
District 5	Local Meeting Survey (14)	Wildfire	Flooding	Drought	Wind-Hail- Tornado	Winter Storm	Haz-Mat	Earthquake
	On-line Survey (13)	Wildfire	Flooding	Drought	Haz-Mat	Winter Storm	Wind-Hail- Tornado	Earthquake
District 6	Local Meeting Survey (11)	Drought	Wildfire	Winter Storm	Flooding	Wind-Hail- Tornado	Haz-Mat	Earthquake
	On-line Survey (11)	Drought	Wind-Hail- Tornado	Winter Storm	Wildfire	Flooding	Haz-Mat	Earthquake

The State Hazard Mitigation Officer expressed a strong desire to see more specific mitigation actions in the State Plan Update. Therefore, meetings were conducted with various state agencies for input to identify mitigation projects that would effectively reduce the risk from natural and man-made hazard events on state assets. Individuals who responded to the on-line survey also contributed a number of mitigation projects for inclusion in the State Plan Update. Statewide mitigation projects are listed under each of the goals and objectives below in two categories; those that are specific and are considered part of the statewide mitigation strategy at this time, and projects that are under consideration that can be developed more fully in the future.

An extensive review of the mitigation projects listed in the Local PDM Plans was conducted for integration into the State Plan Update. Mitigation projects from a total of 59 Local PDM Plans (including 15 draft county plans and 5 draft tribal plans) were entered into a database then categorized in accordance with the goals and objectives in the State Plan Update. **Appendices B through G** contain a compilation of the local mitigation projects organized by DES District. The more generalized mitigation actions listed under the goals and objects below include the types of projects listed in the local plans. Please refer **Appendices B through G** for more specific information.

The listings of local projects include some projects that may appear to be response rather than mitigation projects. They are listed because it is difficult to separate out the response projects from those that are truly mitigation. The State of Montana understands the difference between response and mitigation; however, these projects were important enough to the local jurisdictions to list in their Local PDM Plans and are therefore, included in the State of Montana Multi-Hazard Mitigation Plan.

Mitigation projects for all goals and objectives are identified below. State projects are not ranked in importance consistent with goal priorities as they are in the Local PDM Plans. For example, statewide earthquake projects (Goal 9) are equally important in the state mitigation strategy as projects to mitigate flood hazards (Goal 5). The importance of the state projects under each goal are considered equally important. A methodology for prioritizing mitigation projects for funding is outlined in *Section 5.3*.

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.1: Increase readiness for the protection of life and property during an event.

Types of potential actions from Local PDM Plans:

- Develop evacuation plans.
- Identify and establish shelters.
- Place generators and/or hook-ups at critical facilities.
- Develop safe zones and shelter-in-place standards.
- Provide training to first responders.

Potential statewide actions under consideration:

- Ensure seamless communication between all law enforcement and public safety agencies at local, regional and state level.
- Provide funding for all branches of EMS to provide first responders with radios and communication tools in event of disaster.
- Establish adequate local infrastructure to provide critical services sufficient to support survivors for two weeks after a major hazard event.

- Identify critical operations that will allow state and local government to continuously operate in the event of a hazard event.
- Identify portable equipment and tools that can assist in the delivery of critical services in the event of a hazard event.
- Identify facilities and assets that support critical operations for continuity of government in the event of a hazard event.

Specific statewide mitigation actions:

- At the State's central computer complex in Helena, install appropriate fire suppression systems to maintain data and ensure continuity of operations.
- Within the Capitol complex in Helena, install fire suppression systems in document archives and libraries (without adequate suppression) to avoid loss of irreplaceable documents.

Objective 1.2: Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Types of potential actions from Local PDM Plans:

- Enable local cell providers to provide warning messages to cell phones or home phones since all broadcast stations cannot utilize EAS.
- Install siren systems.
- Expand and upgrade NOAA weather radio transmitters where they are getting old or don't cover as large an area as they could.
- Place NOAA weather radios in all local government offices and critical facilities.

Potential statewide actions under consideration:

- Conduct a Statewide warning capability assessment.
- Install EAS encoders/decoders at dispatch centers.
- Establish way for counties to be able to issue their own emergency messages through the State EAS plan.
- Develop Statewide emergency telephone notification system.
- Promote real-time Internet information systems.
- Promote better communication with Statewide Enhanced-911.
- Place NOAA weather radios in all state government offices.
- Promote use of NOAA weather radios in homes and when recreating (battery powered).
- Recommend voluntary placement of NOAA weather radios in restaurants, gas stations, stores, day cares, movie theaters, baseball fields, and/or golf courses.
- Provide NOAA weather radio education.

Specific statewide mitigation actions:

- Work with local jurisdictions to integrate procedures in the Statewide All-Hazard Emergency Alert System (EAS) plan into their local emergency plans.

Objective 1.3: Increase the public awareness of hazards.

Types of potential actions from Local PDM Plans:

- Increase the public awareness of hazards.
- Provide opportunities for the public to learn how to protect themselves.
- Encourage the public to take responsibility for their safety.

Potential statewide actions under consideration:

- Develop state and local mitigation outreach plans.
- Promote earth science education of hazards in schools.

- Conduct mitigation education in school programs.
- Promote citizen self sufficiency.

Specific statewide mitigation actions:

- Educate all public school students in preparedness activities including the American Red Cross "Masters of Disaster" curriculum.

Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Types of potential actions from Local PDM Plans:

- Update maps to show new housing developments.
- Develop GIS data that can be used with FEMA's HAZUS loss estimation models.

Potential statewide actions under consideration:

- Coordinate with NRIS to provide a GIS system which is not duplicative of what's available locally and finance it as a state system that the counties can tap into.
- Conduct Level 1 HAZUS-MH analyses for all Montana counties.
- Improve Statewide HAZUS data.
- Continue studies of individual hazards.

Specific statewide mitigation actions:

- Provide easily accessible GIS databases of assets, populations, and hazard information to emergency managers.
- Determine GPS locations of all State buildings for detailed, non-public analysis.
- Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes.

Objective 1.5: Increase readiness for the protection of prehistoric and historic cultural resources during an event.

Types of potential actions from Local PDM Plans:

- Develop policies for mitigating loss of historic and cultural sites.
- Expand public awareness about the need to protect historic sites.

Potential statewide actions under consideration:

- Include economic and social values in inventories of structures and areas considered for hazard mitigation planning such as tourism value, heritage value, and scenic value.

Specific statewide mitigation actions:

- Plan for the protection of historic and cultural properties in hazard prone areas.

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

Types of potential actions from Local PDM Plans:

- Assist small local groups with funding for hazard mitigation.
- Provide assistance to small communities who have different needs and fewer resources than larger cities.

Potential statewide actions under consideration:

- Negotiate with FEMA to make the PDM-C mitigation grant process easier.
- Provide technical assistance with hazard mapping for communities without GIS capabilities.
- Append other emergency preparedness/response plans to the State PDM Plan as these could assist locals with mitigation planning.
- Work more closely with federal counterparts and utilize their expertise and training relative to hazard mitigation.

Specific statewide mitigation actions:

- Provide technical assistance to local governments.
- Continue mitigation planning training courses.
- Coordinate Local PDM Plan updates.
- Assist local jurisdictions fill out FEMA PDM-C grant applications.
- Assist local DES coordinators develop plan of action to complete their more doable mitigation projects.
- Develop standardized rating system for looking at risk, vulnerability and hazards for use as a template in local PDM Plan updates.

Objective 2.2: Promote mitigation through supportive legislation and funding.

Types of potential actions from Local PDM Plans:

- Develop land use and growth policies that prevent or guide development in high hazard areas.
- Create zoning ordinances that restrict development of hazard areas.

Potential statewide actions under consideration:

- Enforce mitigation standards in State and/or local subdivision regulations.
- Require growth policies to consider natural and man-made hazards.
- Develop stormwater management regulations.
- Develop a mitigation identity - market mitigation.
- Explore economic incentives for mitigation.
- Increase awareness among state and federal congressional staff for funding of mitigation.

Specific statewide mitigation actions:

- Create a State-funded grant program to assist with the 25 percent PDM-C match for local governments.
- Ensure State programs receive adequate funding to engage in mitigation planning and project implementation.

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

Potential statewide actions under consideration:

- Create an electronic database of completed mitigation projects in Montana.
- Create a private sector advisory group to assist with hazard mitigation planning.

Specific statewide mitigation actions:

- Continue outreach of mitigation project funding opportunities.
- Provide technical assistance with the environmental review process.
- Provide technical assistance for project development.
- Document mitigation successes.

- Further engage State agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process.
- Increase the scope and participation of the State Hazard Mitigation Team to include establishing priorities for the state and ranking projects on an annual basis.

Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires

Objective 3.1: Enhance firefighting resources and improve firefighting capabilities.

Types of potential actions from Local PDM Plans:

- Assist local fire jurisdictions with wildfire response and fuel mitigation projects.
- Install water tanks or dry hydrants in outlying areas.
- Recruit more volunteer fire fighters.
- Build additional water storage facilities.

Potential statewide actions under consideration:

- Provide a centralized statewide public database to connect education and project resource needs with available resource/contractor services.
- Support and fund a statewide Firesafe Montana organization that can gather, disseminate and assist counties and other political subdivisions with grant information, project development and operations.

Specific statewide mitigation actions:

- Support and fund a statewide Firesafe Montana organization that can gather, disseminate and assist counties and other political subdivisions with grant information, project development and operations.

Objective 3.2: Reduce fuels in the WUI, in rangelands, and in communities.

Types of potential actions from Local PDM Plans:

- Develop funded homeowner fuel reduction programs.
- Create "fire break" network.
- Develop ordinances restricting CRP acreage near communities.
- Remove hazardous abandoned buildings.
- Reduce fuels along ingress and egress roadways.
- Encourage weed control/mowing along railroads.

Potential statewide actions under consideration:

- Conduct controlled burns.
- Reduce forest fuels.
- Streamline the permitting process for fuel reduction.
- Conduct fuel reduction in utility right-of-ways.
- Work with insurance industry to provide mitigation incentives.
- Integrate air quality standards with fuel reduction.
- Step-up mitigation efforts on federal lands adjacent to private/state holdings.

Specific statewide mitigation actions:

- Address wildland fuel hazards on state property including parks, day-use facilities and highway rights-of-way.
- At DNRC Forest Management Units statewide, expand units to provide risk reduction operations to reduce risk of complex events.

Objective 3.3: Enhance community awareness of wildfires through education.

Types of potential actions from Local PDM Plans:

- Promote educational programs such as Firewise and Firesafe Montana.
- Erect billboards on fire danger.

Potential statewide actions under consideration:

- Educate landowners in fuel reduction.
- Educate farmers, ranchers, landowners, and homeowners on specific rangeland fire problems.
- Educate the public to mitigate human-caused ignition sources of wildfire.

Specific statewide mitigation actions:

- Promote public responsibility for defensible space in the WUI.

Objective 3.4: Accurately assess and address the current WUI problems at the subdivision level.

Types of potential actions from Local PDM Plans:

- Mitigate development possibilities in the WUI.
- Adopt wildfire mitigation standards in high growth areas.
- Require water supply systems in existing subdivisions.
- Implement a home safety inspection program.

Potential statewide actions under consideration:

- Encourage community wildfire protection plans.

Specific statewide mitigation actions:

- Coordinate with federal and state land management agencies for fuel reduction.

Objective 3.5: Enhance effectiveness of response and evacuation.

Types of potential actions from Local PDM Plans:

- Develop evacuation plans for each community.
- Post evacuation route signs along primary and secondary access routes.
- Create alternate evacuation routes where needed.
- Identify and replace/fireproof wooden bridges.

Objective 3.6: Establish mapping or record keeping practices to support fuel management strategies.

Types of potential actions from Local PDM Plans:

- Develop GIS capability and fire/fuel map layers.
- Develop centralized wildfire history database.
- Map/locate structures in WUI.

Potential statewide actions under consideration:

- Centralize fire history documentation.
- Develop a consistent Statewide fire risk assessment system.

Goal 4: Minimize Economic Impacts of Drought

Objective 4.1: Identify water retention projects that could lessen the effects of drought

Types of potential actions from Local PDM Plans:

- Develop alternate water supply for irrigation.
- Work with Army Corps of Engineers to minimize the continuous drawdown of the Missouri River and Fort Peck Reservoir.

Specific statewide mitigation actions:

- Explore water retention project on the Milk River in Hill County.

Objective 4.2: Provide education and incentives for minimizing the effects of drought.

Types of potential actions from Local PDM Plans:

- Provide water conservation education.
- Offer seminars on drought management for crop and livestock producers.

Potential statewide actions under consideration:

- Fund scientific research on drought and work with farmers on-site.
- Improve drought insurance options for agriculture.
- Educate farmers on drought resistant crops.
- Promote soil erosion prevention measures.
- Develop a system for distributing information on current conditions.
- Promote water conservation methods and/or water management programs for all municipalities and counties.
- Provide education on year-round water conservation.
- Provide incentives for used water recycling systems and rain water collection systems.

Objective 4.3: Improve drought monitoring and assessments.

Types of potential actions from Local PDM Plans:

- Continue support of Local Drought Advisory Committees.
- Include weekly water equivalent measurements in routine at Coop observation sites.

Potential statewide actions under consideration:

- Use long-term groundwater monitoring to assess drought conditions.

Specific statewide mitigation actions:

- Continue to support the State Drought Advisory Committee.
- Install Statewide drought monitoring stations.

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding

Objective 5.1: Provide adequate warning of flooding events.

Types of potential actions from Local PDM Plans:

- Install an automated river gage as needed.
- Install river warning systems.

Potential statewide actions under consideration:

- Map burn areas and provide maps/GIS data to the National Weather Service as a way to help mitigate the effects of flooding and debris flows.

Specific statewide mitigation actions:

- Link critical information in real-time to dispatch centers.
- Provide planning assistance to local responders.

Objective 5.2: Reduce the number of current and future structures in the floodplain.

Types of potential actions from Local PDM Plans:

- Acquire structures or land in the floodplain.
- Elevate structures in the floodplain.
- Relocate structures in the floodplain.
- Develop stricter local floodplain ordinances.

Potential statewide actions under consideration:

- Obtain conservation easements for land in the floodplain.
- Develop and improve upon model floodplain ordinances for local governments.
- Fully fund local floodplain managers.

Specific statewide mitigation actions:

- Encourage jurisdictions to pursue mitigation of repetitive loss structures or any severe repetitive loss properties identified in the future.

Objective 5.3: Prevent flooding of structures and infrastructure.

Types of potential actions from Local PDM Plans:

- Elevate roadways.
- Create water retention basins.
- Install or upgrade culverts.
- Conduct streambank restoration.
- Install backflow valves.
- Install or upgrade storm drains.

Potential statewide actions under consideration:

- Provide funding for flood mapping.
- Develop flood resistant landscape guidelines (berms, ponds, irrigation ditches, etc.).
- Develop driveway/private road bridge and culvert guidelines.
- Develop irrigation system guidelines.

Specific statewide mitigation actions:

- Upgrade bridges that inhibit water flow.

Objective 5.4: Increase the public awareness of flood mitigation.

Types of potential actions from Local PDM Plans:

- Educate the public on their responsibility to mitigate flooding.
- Form a Lower Milk River Coalition to try to obtain funding for automated gage sites.

Potential statewide actions under consideration:

- Educate public on need to limit development in the floodplain.
- Support real estate disclosures.
- Educate home and business owners on utility tie-downs.

Specific statewide mitigation actions:

- Continue to provide flood insurance education.

Objective 5.5: Improve the effectiveness of flood insurance programs.

Types of potential actions from Local PDM Plans:

- Participate in National Weather Service StormReady program which allows 25 points towards the Community Rating System points a community gets.

Potential statewide actions under consideration:

- Establish a schedule for National Flood Insurance Program map reviews and updates.

Specific statewide mitigation actions:

- Develop mapping for flood prone areas.
- Update floodplain mapping.
- Provide outreach and technical assistance in joining the National Flood Insurance Program Community Rating System for reducing flood insurance premiums.

Objective 5.6: Reduce the risk of dam or levee failure.

Types of potential actions from Local PDM Plans:

- Install dam failure alert systems.

Potential statewide actions under consideration:

- Remove high hazard, inadequate flood control structures.
- Provide flood analysis of existing dikes and levees.
- Repair state dams and levees.
- Provide matching funds for federal projects to mitigate existing deficiencies

Goal 6: Reduce Impacts from Severe Winter Weather

Objective 6.1: Increase community capabilities to mitigate winter weather hazards.

Types of potential actions from Local PDM Plans:

- Develop sheltering-in-place plans.
- Structurally analyze local emergency services facilities and strengthen as necessary.
- Identify and develop evacuation procedures for special needs individuals who cannot survive during a power outage.

Potential statewide actions under consideration:

- Encourage utilities to put their equipment underground in areas that are hit by extreme weather.

Specific statewide mitigation actions:

- Identify critical infrastructure vulnerable to extreme cold conditions.

Objective 6.2: Increase public awareness of winter weather hazards.

Types of potential actions from Local PDM Plans:

- Encourage landscape/tree trimming near power lines.
- Increase public awareness on their responsibility to be prepared for severe winter storms.
- Promote sale of winter survival kits at local community events.

Potential statewide actions under consideration:

- Create partnership with a private company (such as Wal-Mart, Home Depot, www.getreadygear.com) for winter survival kits already put together that can be sold to the public at a reasonable price.

Specific statewide mitigation actions:

- Distribute winter driving and survival tips.
- Promote winter survival kits for homes and cars.
- Promote partnership with National Weather Service and media to publicize Winter Hazards Weather Awareness Week to help educate public on preparedness.

Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)

Objective 7.1: Increase community capabilities to mitigate summer weather hazards.

Types of potential actions from Local PDM Plans:

- Obtain shatter-proof film for windows at critical facilities.
- Make a bulk purchase of NOAA weather radios for public buildings and households.
- Develop special needs population plans.

Potential statewide actions under consideration:

- Encourage utilities to bury electric lines that could blow down and ignite fires.
- Improve public notification systems of impending storms.

Specific statewide mitigation actions:

- At the Montana Women's Prison in Billings, mitigate the structure against natural hazards to maintain security and operation.
- At the Montana Mental Health Nursing Care Center in Lewistown, mitigate the structure against natural hazards to maintain operation and meet medical needs.
- At the Pine Hills Youth Correctional Facility in Miles City, improve wind resistance of building roofs.

Objective 7.2: Increase public awareness of ways to mitigate summer weather hazards.

Types of potential actions from Local PDM Plans:

- Disseminate information on reducing property damage from high winds.
- Educate the public on recognizing severe weather and behaving safely.
- Promote SkyWarn weather spotter training classes.

Potential statewide actions under consideration:

- Educate public on native tree species which are more wind resistant.

Specific statewide mitigation actions:

- Promote partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.

Goal 8: Reduce Losses from Hazardous Material Incidents

Objective 8.1: Provide education, training on haz-mat incidents and response.

Types of potential actions from Local PDM Plans:

- Provide hazardous materials equipment and training to rural communities.
- Increase public awareness of shelter-in-place procedures for homes near transportation networks that commonly carry hazardous materials.

Potential statewide actions under consideration:

- Establish more hazardous materials teams around the state.
- Utilize the emergency alert system for public notification during hazardous materials emergencies.

Objective 8.2: Identify and secure hazardous materials locations and transporters.

Types of potential actions from Local PDM Plans:

- Enhance information capability on types of hazardous materials traveling transportation routes.
- Install security measures near fixed hazardous materials facilities.

Potential statewide actions under consideration:

- Install hazardous materials drains and catch basins at problem spots near waterways.

Objective 8.3: Support hazardous materials regulations and agreements.

Types of potential actions from Local PDM Plans:

- Improve coordination among the various responders.

Potential statewide actions under consideration:

- Enforce hazardous materials reporting standards for fixed facilities.

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas

Objective 9.1: Provide for earthquake resistance in new construction.

Types of potential actions from Local PDM Plans:

- Provide greater enforcement of current building codes.
- Promote seismic review of proposed subdivisions.

Potential statewide actions under consideration:

- Create stronger building standards for critical facilities and structures housing vulnerable populations.
- Constantly review and incorporate the most advanced seismic mitigation techniques into codes and practices.

- Constantly update professionals with the responsibility for seismic protection design and construction on those techniques.
- Maintain aesthetics of historic buildings while implements seismic retrofits.

Objective 9.2: Educate the public in earthquake mitigation and readiness.

Types of potential actions from Local PDM Plans:

- Conduct earthquake drills in schools and enhance education/training on earthquake preparedness.
- Encourage workplace earthquake drills.

Potential statewide actions under consideration:

- Map earthquake risk zones and faults to standard scale.
- Educate transportation and utility employees on seismic hazards.

Specific statewide mitigation actions:

- Expand and upgrade the earthquake monitoring network and information reporting capabilities.
- Continue "Earthquake Preparedness Month" outreach activities during the month of October.
- Continue presentations and distribution of earthquake awareness materials.

Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.

Types of potential actions from Local PDM Plans:

- Coat windows in schools and critical facilities with shatter resistant film.
- Inspect key bridges for seismic stability.
- Retrofit critical facilities for earthquakes.

Potential statewide actions under consideration:

- Conduct seismic evaluations of university campus buildings and utility tunnels to identify where seismic retrofits are necessary.
- Conduct seismic evaluations of government buildings and critical facilities.
- Conduct structural retrofits of government buildings (including university campuses) and critical facilities.
- Create residential and business retrofit programs.
- Retrofit bridges and overpasses to ensure seismic stability.
- Retrofit public utility systems for seismic stability.
- Install utility shut off valves at all government buildings and critical facilities.

Specific statewide mitigation actions:

- At the MSU-Bozeman campus, seismically retrofit Leon Hall, an 11-story masonry veneer build with questionable veneer attachment to the frame.
- At the UM-Western campus in Dillon, stabilize Main Hall which was damaged from recent earthquakes.
- Within the State government complex in Helena, construct and relocate the central commuters to a seismically-hardened building with adequate services to ensure continuity of operation.
- At the State Prison complex in Deer Lodge, improve support systems and implement minimal seismic upgrades to ensure security and maintain operation.
- At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.

- At the UM-Western campus in Dillon, seismically harden buildings with emphasis to heating plant, refuge buildings and housing and brace utilities distribution. Campus has potential to be upgraded to operate as secure refuge.
- At the MSU-Bozeman campus, seismically harden buildings with emphasis to the heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system.
- At the Montana Tech of the UM campus in Butte, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing.
- At the Montana Tech of the UM campus in Butte, relocate the seismic monitoring center to a stable building.
- At the Capitol Complex in Helena, seismically retrofit buildings to mitigate loss.
- At the UM-Missoula campus, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system.
- At the Montana Developmental Center in Boulder, implement seismic upgrades.

Objective 9.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards

Types of potential actions from Local PDM Plans:

- Complete earthquake risk assessment at public schools and identify non-structural projects like securing equipment.
- Tie down objects in critical facilities and vulnerable population locations that could fall during an earthquake.
- Install expansion joint in underground utilities during new or replacement construction.

Potential statewide actions under consideration:

- Implement non-structural projects at government buildings, particularly critical facilities.
- Implement non-structural mitigation in schools and hospitals such as equipment/furniture straps.

Specific statewide mitigation actions:

- At the State Information Technology Center in Helena, obtain earthquake mitigation devices for data center equipment to provide protection during non-catastrophic earthquakes.
- At the Montana Developmental Center in Boulder, implement non-structural projects.

Goal 10: Reduce the Likelihood of Communicable Disease Outbreaks

Objective 10.1: Reduce losses associated with a human health emergency.

Types of potential actions from Local PDM Plans:

- Continue working with the public health agencies.
- Conduct a public education campaign on how to prevent the spread of disease.

Potential statewide actions under consideration:

- Improve surveillance of communicable disease by educating the general population about the importance of reporting disease and how to report.
- Create a State task force to examine and provide ethical guidance to health care providers and institutions in a pandemic situation.
- Develop Executive Order that suspends the normal "standards of care" in a pandemic.

Objective 10.2: Reduce losses associated with livestock disease outbreaks and agricultural emergencies.

Types of potential actions from Local PDM Plans:

- Provide holding facilities to quarantine affected livestock.
- Provide training to first responders on response to livestock and agricultural emergencies.

Potential statewide actions under consideration:

- Maximize mitigation efforts to control bison carrying diseases into Montana.
- Mitigate the potential for loss from quarantined cattle traveling through the State from Canada.

Goal 11: Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards

Objective 11.1: Prevent losses from acts of terrorism, violence, and civil unrest.

Types of potential actions from Local PDM Plans:

- Increase security of critical facilities.

Potential statewide actions under consideration:

- Support the mitigation-related goals, objectives, and actions of the Montana Homeland Security Strategic Plan.
- Enhance security along the northern border of the State.

Objective 11.2: Identify and reduce potential losses from landslides and avalanches.

Types of potential actions from Local PDM Plans:

- Use landslide and avalanche mapping in infrastructure and subdivision reviews.

Potential statewide actions under consideration:

- Identify and map areas of greatest landslide and avalanche potential.
- Conduct proactive scaling and reducing of back slopes.
- Create a landslide/avalanche technical committee.

Objective 11.3: Identify and reduce losses from volcanic activity.

Types of potential actions from Local PDM Plans:

- Educate the public on how to respond to volcanic ash fall-out.

4.1.1 Proposed Statewide Initiatives

Many of the projects proposed are the types of projects that are implemented at the local level. Some, however, are statewide in nature and would be implemented by state agencies. An implementation plan for specific statewide projects follows in **Table 4.1-1**.

Table 4.1-2 Plan Implementation for Statewide Mitigation Actions; Specific Projects

Project	Objective	Lead Agency	Funding Source
At the State's central computer complex in Helena, install appropriate fire suppression systems to maintain data and ensure continuity of operations.	1.1	Montana Dept. of Administration (DOA)	Existing budgets or grant
Within the Capitol Complex in Helena, install fire suppression systems in document archives and libraries to avoid loss of irreplaceable documents	1.1	DOA	Existing budgets or grant
Work with local jurisdictions to integrate procedures in the Statewide All-Hazard Emergency Alert System (EAS) plan into their local emergency plans.	1.2	DES, NWS	PDM/HMGP or Homeland Security grant
Educate all public school students in preparedness activities including the American Red Cross "Masters of Disaster" curriculum	1.3	OPI	Existing budget
Provide easily accessible GIS databases of hazard information to emergency managers	1.4	DES, Montana State Library	Existing budgets or grant
Determine GPS locations of all State buildings for detailed, non-public analysis	1.4	DOA, DES	Existing budgets or Homeland Security grant
Conduct non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	1.4	DES	Homeland Security or PDM/HMGP grant
Plan for the protection of historic and cultural properties in hazard prone areas	1.5	DES, Montana Heritage Program	Existing budgets
Provide technical assistance to local governments	2.1	DES	Existing budgets
Continue mitigation planning training courses	2.1	DES, FEMA	Existing budgets
Coordinate Local PDM Plan Updates	2.1	DES	Existing budget
Assist local jurisdictions fill out FEMA PDM-C grant applications	2.1	DES	Existing budget
Assist local DES coordinators develop action plan to complete their more doable mitigation projects	2.1	DES	Existing budget
Develop standardized rating system for looking at risk, vulnerability and hazards for use as a template in local PDM Plan updates.	2.1	DES	Existing budget
Create a state funded grant program to assist with the 25% match for local governments	2.2	Legislature, DES	State funds
Ensure State programs receive adequate funding to engage in mitigation planning and project implementation	2.2	Legislature, DES	Existing budgets
Continue outreach of mitigation project funding opportunities	2.3	DES, DNRC	Existing budgets
Provide technical assistance with the environmental review process	2.3	DES, DNRC, DEQ, FWP, FEMA	Existing budgets
Provide technical assistance with project development	2.3	DES, DNRC, FEMA	Existing budgets
Document mitigation successes	2.3	DES, DNRC	Existing budgets
Further engage State agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process	2.3	DMA, DOA, MDT, FWP, DNRC	Existing budgets
Increase the scope and participation of the State Hazard Mitigation Team to include establishing priorities for the state and ranking projects on an annual basis.	2.3	DES	Existing budget
Support and fund a statewide Firesafe Montana organization that can gather, disseminate and assist counties and other political subdivisions with grant information, project development and operations	3.1	DES, DNRC	Existing budget

Table 4.1-2 Plan Implementation for Statewide Mitigation Actions; Specific Projects

Project	Objective	Lead Agency	Funding Source
Address wildland fuel hazards on state property including parks, day-use facilities and highway rights-of-way	3.2	FWP, MDT, DNRC – Forestry Division	Existing budgets or grant
At DNRC Forest Management Units statewide, expand units to provide risk reduction operations to reduce risk of complex events	3.2	DNRC – Forestry Division	Existing budgets or grant
Promote public responsibility for defensible space in the WUI	3.3	DES, DNRC-Forestry Division	Existing budgets or grant
Coordinate with federal and state land management agencies for fuel reduction	3.4	DNRC – Forestry Division, USFS, BLM, BIA, FWP	Existing budgets or grant
Explore water retention project on the Milk River in Hill County	4.1	Legislature, MT Drought Advisory Committee	Existing budgets or grant
Continue to support the State Drought Advisory Committee	4.3	Legislature	Existing budget
Install Statewide drought monitoring stations	4.3	USDA, MT Drought Advisory Committee	Grant
Link critical information in real-time to dispatch centers	5.1	DES, NWS	Existing budgets
Provide planning assistance to local responders	5.1	DES	Existing budgets
Encourage jurisdictions to pursue mitigation of repetitive loss structures or any severe repetitive loss properties identified in the future.	5.2	DES	Existing budgets
Upgrade bridges that inhibit water flow	5.3	DES, MDT	Existing budgets of PDM-C Grant
Continue to provide flood insurance education	5.4	DES, DNRC	Existing budgets
Develop mapping for flood prone areas	5.5	DNRC – Water Resources, FEMA	NFIP Map Modernization Funding
Update floodplain mapping	5.5	DNRC – Water Resources, FEMA	NFIP Map Modernization Funding
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	5.5	DNRC – Water Resources, FEMA	Existing budgets or CAP grant
Identify critical infrastructure vulnerable to extreme cold conditions	6.1	DES	Existing budget
Promote disaster supply and winter survival kits for homes and cars	6.2	DES	Existing budget or grant
Promote partnership with National Weather Service and media to publicize Winter Hazards Weather Awareness Week to help educate public on preparedness	6.2	DES, NWS	Existing budget
Distribute winter driving and survival tips	6.2	DES, NWS	Existing budget or grant
At the Montana Women's Prison in Billings, mitigate the structure against natural hazards to maintain security and operation	7.1	DOA	Existing budget or grant
At the Montana Mental Health Nursing Care Center in Lewistown, mitigate the structure against natural hazards to maintain operation and meet medical needs	7.1	DOA	Existing budget or grant
At the Pine Hills Youth Correctional Facility in Miles City, improve wind resistance of building roofs	7.1	DOA	Existing budget or grant
Promote partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.	7.2	DES, NWS	Existing budget or grant
Install hazardous material drains and catch basins at problem spots near waterways.	8.2	MDT	Existing budget
Expand and upgrade earthquake monitoring network and reporting capabilities	9.2	MBMG	Existing budget or grant

Table 4.1-2 Plan Implementation for Statewide Mitigation Actions; Specific Projects

Project	Objective	Lead Agency	Funding Source
Continue "Earthquake Preparedness Month" outreach activities during the month of October	9.2	DES, MBMG	Existing budgets
Continue presentations and distribution of earthquake awareness materials	9.2	DES, MBMG	Existing budgets
At the MSU-Bozeman campus, seismically retrofit Leon Hall, an 11-story masonry veneer build with questionable veneer attachment to the frame	9.3	DOA	Existing budgets or grant
At the UM-Western campus in Dillon, stabilize Main Hall which was damaged from recent earthquakes	9.3	DOA	Existing budgets or grant
Within the State government complex in Helena, construct and relocate the central commuters to a seismically hardened building with adequate services to ensure continuity of operation	9.3	DOA	Existing budgets or grant
At the State Prison complex in Deer Lodge, improve support systems and implement minimal seismic upgrades to ensure security and maintain operation	9.3	DOA	Existing budgets or grant
At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs	9.3	DOA	Existing budgets or grant
At the UM-Western campus in Dillon, seismically harden buildings with emphasis to heating plant, refuge buildings and housing and brace utilities distribution	9.3	DOA	Existing budgets or grant
At the MSU-Bozeman campus, seismically harden buildings with emphasis to the heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system	9.3	DOA	Existing budgets or grant
At the Montana Tech of the UM campus in Butte, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing	9.3	DOA	Existing budgets or grant
At the Montana Tech of the UM campus in Butte, relocate the seismic monitoring center to a stable building	9.3	DOA	Existing budgets or grant
At the Capitol Complex in Helena, seismically retrofit buildings to mitigate loss	9.3	DOA	Existing budgets or grant
At the Montana Developmental Center in Boulder, implement seismic upgrades	9.3	DOA	Existing budgets or grant
Conduct structural retrofits of government buildings (including university campuses) and critical facilities	9.3	DOA	Existing budgets or grant
At the State Information Technology Center in Helena, obtain earthquake mitigation devises for data center equipment to provide protection during non-catastrophic earthquakes	9.4	DOA	Existing budgets or grant
At the Montana Developmental Center in Boulder, implement non-structural projects	9.4	DOA	Existing budgets or grant

Projects have been ranked and prioritized, in accordance with the criteria outlined in *Section 5.3*. The scoring regime includes criteria for non-planning and planning projects. **Appendix A** contains the project scoring sheets. A prioritized list of projects is presented in **Table 4.1-3**.

Table 4.1-3 Prioritized List of State-Specific Mitigation Projects; Planning and Non-Planning Projects

Score	Mitigation Goal	Mitigation Objective	Mitigation Project
NON-PLANNING PROJECTS			
48 High	Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	Objective 3.1: Enhance firefighting resources and improve firefighting capabilities.	Support and fund a statewide Firesafe Montana organization that can gather, disseminate and assist counties and other political subdivisions with grant information, project development and operations.
44 High	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.2: Educate the public in earthquake mitigation and readiness.	Continue "Earthquake Preparedness Month" outreach activities during the month of October.
44 High	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.2: Educate the public in earthquake mitigation and readiness.	Continue presentations and distribution of earthquake awareness materials.
42 High	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.1: Provide adequate warning of flooding events.	Link critical information in real-time to dispatch centers.
42 High	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.2: Reduce the number of current and future structures in the floodplain.	Encourage jurisdictions to pursue mitigation of repetitive loss structures or any severe repetitive loss properties identified in the future.
41 High	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.1: Increase readiness for the protection of life and property during an event.	At the State's central computer complex in Helena, install appropriate fire suppression systems to maintain data and ensure continuity of operations.
40 High	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.2: Educate the public in earthquake mitigation and readiness.	Expand and upgrade the earthquake monitoring network and information reporting capabilities.
40 High	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Continue outreach of mitigation project funding opportunities.
40 High	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Further engage State agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process.
40 High	Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	Objective 3.2: Reduce fuels in the WUI	Address wildland fuel hazards on state property including parks, day-use facilities and highway rights-of-way.
40 High	Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	Objective 3.2: Reduce fuels in the WUI	At DNRC Forest Management Units statewide, expand units to provide risk reduction operations to reduce risk of complex events.
40 High	Goal 4: Minimize Economic Impacts of Drought	Objective 4.1: Identify water retention projects that could lessen the effects of drought	Explore water retention project on the Milk River in Hill County.
40 High	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.5: Improve the effectiveness of flood insurance programs.	Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.
39 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Provide technical assistance to local governments.
39 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Continue mitigation planning training courses.

Table 4.1-3 Prioritized List of State-Specific Mitigation Projects; Planning and Non-Planning Projects

Score	Mitigation Goal	Mitigation Objective	Mitigation Project
39 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Assist local jurisdictions fill out FEMA PDM-C grant applications.
39 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Provide technical assistance with the environmental review process.
39 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Provide technical assistance for project development.
39 Medium	Goal 6: Reduce Impacts from Severe Winter Weather	Objective 6.1: Increase community capabilities to mitigate winter weather hazards.	Identify critical infrastructure vulnerable to extreme cold conditions.
38 Medium	Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)	Objective 7.1: Increase community capabilities to mitigate summer weather hazards.	At the Montana Women's Prison in Billings, mitigate the structure against natural hazards to maintain security and operation.
38 Medium	Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)	Objective 7.1: Increase community capabilities to mitigate summer weather hazards.	At the Montana Mental Health Nursing Care Center in Lewistown, mitigate the structure against natural hazards to maintain operation and meet medical needs.
38 Medium	Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)	Objective 7.1: Increase community capabilities to mitigate summer weather hazards.	At the Pine Hills Youth Correctional Facility in Miles City, improve wind resistance of building roofs.
37 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.1: Increase readiness for the protection of life and property during an event.	Within the Capitol complex in Helena, install fire suppression systems in document archives and libraries (without adequate suppression) to avoid loss of irreplaceable documents.
37 Medium	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.5: Improve the effectiveness of flood insurance programs.	Develop mapping for flood prone areas.
37 Medium	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.5: Improve the effectiveness of flood insurance programs.	Update floodplain mapping.
36 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.2: Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.	Work with local jurisdictions to integrate procedures in the Statewide All-Hazard Emergency Alert System (EAS) plan into their local emergency plans.
36 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.2: Promote mitigation through supportive legislation and funding.	Create a State-funded grant program to assist with the 25 percent PDM-C match for local governments.
36 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.2: Promote mitigation through supportive legislation and funding.	Ensure State programs receive adequate funding to engage in mitigation planning and project implementation.
36 Medium	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.4: Increase the public awareness of flood mitigation.	Continue to provide flood insurance education.
35 Medium	Goal 6: Reduce Impacts from Severe Winter Weather	Objective 6.2: Increase public awareness of winter weather hazards.	Promote winter survival kits for homes and cars.
34 Medium	Goal 6: Reduce Impacts from Severe Winter Weather	Objective 6.2: Increase public awareness of winter weather hazards.	Distribute winter driving and survival tips.
34 Medium	Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)	Objective 7.2: Increase public awareness of ways to mitigate summer weather hazards.	Promote partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.

Table 4.1-3 Prioritized List of State-Specific Mitigation Projects; Planning and Non-Planning Projects

Score	Mitigation Goal	Mitigation Objective	Mitigation Project
33 Medium	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.3: Prevent flooding of structures and infrastructure.	Upgrade bridges that inhibit water flow.
33 Medium	Goal 6: Reduce Impacts from Severe Winter Weather	Objective 6.2: Increase public awareness of winter weather hazards.	Promote partnership with National Weather Service and media to publicize Winter Hazards Weather Awareness Week to help educate public on preparedness
33 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the MSU-Bozeman campus, seismically harden buildings with emphasis to the heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system.
33 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the Capitol Complex in Helena, seismically retrofit buildings to mitigate loss.
32 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the UM-Western campus in Dillon, seismically harden buildings with emphasis to heating plant, refuge buildings and housing and brace utilities distribution. Campus has potential to be upgraded to operate as secure refuge.
32 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the UM-Missoula campus, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system.
32 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards	At the Montana Developmental Center in Boulder, implement non-structural projects
31 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards	At the State Information Technology Center in Helena, obtain earthquake mitigation devices for data center equipment to provide protection during non-catastrophic earthquakes.
30 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	Determine GPS locations of all State buildings for detailed, non-public analysis.
30 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes.
30 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	Within the State government complex in Helena, construct and relocate the central commuters to a seismically-hardened building with adequate services to ensure continuity of operation.
30 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the Montana Tech of the UM campus in Butte, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing.
29 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the MSU-Bozeman campus, seismically retrofit Leon Hall, an 11-story masonry veneer build with questionable veneer attachment to the frame.

Table 4.1-3 Prioritized List of State-Specific Mitigation Projects; Planning and Non-Planning Projects

Score	Mitigation Goal	Mitigation Objective	Mitigation Project
29 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.3: Increase the public awareness of hazards.	Educate all public school students in preparedness activities including the American Red Cross "Masters of Disaster" curriculum.
28 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the Montana Tech of the UM campus in Butte, relocate the seismic monitoring center to a stable building.
27 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the UM-Western campus in Dillon, stabilize Main Hall which was damaged from recent earthquakes.
27 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the State Prison complex in Deer Lodge, improve support systems and implement minimal seismic upgrades to ensure security and maintain operation.
27 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.
27 Medium	Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	At the Montana Developmental Center in Boulder, implement seismic upgrades.
26 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	Provide easily accessible GIS databases of assets, populations, and hazard information to emergency managers.
26 Medium	Goal 4: Minimize Economic Impacts of Drought	Objective 4.3: Improve drought monitoring and assessments.	Install Statewide drought monitoring stations.
22 Low	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Document mitigation successes.
21 Low	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.	Increase the scope and participation of the State Hazard Mitigation Team to include establishing priorities for the state and ranking projects on an annual basis.
PLANNING PROJECTS			
20 High	Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	Objective 3.3: Enhance community awareness of wildfires through education.	Promote public responsibility for defensible space in the WUI.
20 High	Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	Objective 3.4: Accurately assess and address the current WUI problems at the subdivision level.	Coordinate with federal and state land management agencies for fuel reduction.
17 Medium	Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	Objective 5.1: Provide adequate warning of flooding events.	Provide planning assistance to local responders.
16 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Coordinate Local PDM Plan updates.
15 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Assist local DES coordinators develop plan of action to complete their more doable mitigation projects.

Table 4.1-3 Prioritized List of State-Specific Mitigation Projects; Planning and Non-Planning Projects

Score	Mitigation Goal	Mitigation Objective	Mitigation Project
13 Medium	Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	Objective 1.5: Increase readiness for the protection of prehistoric and historic cultural resources during an event.	Plan for the protection of historic and cultural properties in hazard prone areas.
13 Medium	Goal 4: Minimize Economic Impacts of Drought	Objective 4.3: Improve drought monitoring and assessments.	Continue to support the State Drought Advisory Committee.
12 Medium	Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	Objective 2.1: Support mitigation planning at all levels.	Develop standardized rating system for looking at risk, vulnerability and hazards for use as a template in local PDM Plan updates.

4.2 MITIGATION FUNDING SOURCES

Funding for mitigation projects can come from a multitude of sources. Some sources may be specifically designed for disaster mitigation activities, while others may have another overarching purpose that certain mitigation activities may qualify for. The majority of the funding sources are recurring through legislation or continued funding. Some, however, may be from an isolated instance of financial support. Whenever possible, creative financing is encouraged. Often, additional funding sources are found through working with other agencies or businesses to identify common or complementary goals and objectives.

4.2.1 Current Mitigation Funding

Presently, mitigation in Montana is funded through a number of sources, primarily federal. These sources, though, are often met with a match of in-kind services. A description of each of the sources can be found in **Table 4.2-1**.

Table 4.2-1 Current Mitigation Funding Sources

Name	Description	Agency	Typical Funding
Community Assistance Program (CAP)	Provides funding to States to assist communities in complying with NFIP requirements. Managed by Montana DNRC.	FEMA, NFIP	\$95,000 per year
Dam Safety Program	Provides funding to the State to promote dam safety through emergency action plans and exercises. Managed by Montana DNRC.	FEMA, State	\$117,000 per year federal and \$106,000 per year state
Flood Mitigation Assistance Program (FMA)	Provides pre-disaster funding for repetitive flood loss property reduction. Since many homeowners are not interested in these opportunities, often the funds go unused. Managed by Montana DNRC.	FEMA	About \$100,000 per year
Hazard Mitigation Grant Program (HMGP)	Provides post-disaster mitigation funding. Managed by Montana DES.	FEMA	\$132,477 average per year, \$298,073 average per disaster
Homeland Security Grants	Through multiple grants, provides funding for homeland security activities identified in the state and local strategic plans. Some projects can be considered mitigation. Managed by Montana DES.	DOJ, DHS	\$45M from 2002-2005 including \$1M for planning and \$6.5M for security and prevention
Individual Assistance (IA)	Following a disaster, funds can be used to mitigate hazards when repairing individual and family homes.	FEMA/State	N/A
Map Modernization Program	Provides funding to establish or update floodplain mapping. Managed by Montana DNRC.	FEMA, NFIP	\$30,000 for Phase 1 in 2003
National Fire Plan (NFP)	Provides pre-disaster funding for primarily wildland fire mitigation, but also planning for all hazards. Managed by DNRC.	U.S. Land Management Agencies	\$3M in 2003, \$89K in 2004, \$1.2M in 2007
Pre-Disaster Mitigation Competitive Grants (PDM-C)	Provides grants through a competitive process for specific mitigation projects, including planning. Managed by Montana DES.	FEMA	\$6.3M from 2005 to 2007
Pre-Disaster Mitigation Program (PDM)	Previously provided pre-disaster funding for mitigation planning and projects. Managed by Montana DES.	FEMA	\$520,000 in Fiscal Years 2002 & 2003
Public Assistance (PA)	Following a disaster, funds can be used to mitigate hazards when repairing damages to a public structure or infrastructure. Managed by Montana DES.	FEMA/State	N/A
Reclamation and Development Grants Program	Provides funding from the interest income of the Resource Indemnity Trust Fund to local governments for dam safety and other water related projects. Managed by DNRC.	State, DNRC	\$3,000,000

4.2.2 Other Potential Mitigation Funding

Additional funding sources may exist that can be used to advance mitigation priorities. These sources, although, not explicitly used for mitigation, can be used to fund certain mitigation activities. In the future, these funding sources will be pursued whenever possible. In some cases, these funding sources have been used in the past and are currently being used in some local communities. A list of alternative funding sources can be found in **Table 4.2-2**.

These lists of potential funding sources are certainly not all inclusive. Many opportunities for mitigation funding exist both in the public and private sectors such as foundations and philanthropic organizations. New funding mechanisms are constantly being created while others are drying up. The funding sources targeted will depend on the specific project needing to be financed. Through continuous creativity and research, opportunities for mitigation in Montana will continue.

Table 4.2-2 Alternative Mitigation Funding Sources

Name	Description	Agency
AmeriCorps	Provides funding for volunteers to serve communities, including disaster prevention.	Corporation for National & Community Service
Community Development Block Grant (CDBG)	Often following a disaster, the state will receive a CDBG Supplement intended to do mitigation projects in the affected areas. In this instance, DES coordinates with the MT Dept of Commerce.	Montana Department of Commerce
Clean Water Act Section 319 Grants	Provides grants for a wide variety of activities related to non-point source pollution runoff mitigation.	EPA
Economic Development Administration (EDA) Grants and Investments	Invests and provides grants for community construction projects, including mitigation activities.	U.S. Department of Commerce, EDA
Emergency Watershed Protection	Provides funding and technical assistance for emergency measures such as floodplain easements in impaired watersheds.	USDA, NRCS
Environmental Quality Incentives Program	Provides funding and technical assistance to farmers and ranchers to promote agricultural production and environmental quality as compatible goals.	USDA, NRCS
Forest Land Enhancement Program	Provides educational, technical, and financial assistance to help landowners implement sustainable forestry management objectives	U.S. Forest Service, DNRC
Housing and Urban Development (HUD) Grants	Provides a number of grants related to safe housing initiatives.	U.S. Department of Housing and Urban Development (HUD)
National Wildlife Wetland Refuge System	Provides funding for the acquisition of lands into the federal wildlife refuge system.	U.S. Fish, Wildlife, & Parks
North American Wetland Conservation Fund	Provides funding for wetland conservation projects.	U.S. Fish, Wildlife, & Parks
NRCS Conservation Programs	Provides funding through a number of programs for the conservation of natural resources.	USDA, NRCS
Partners for Fish and Wildlife	Provides financial and technical assistance to landowners for wetland restoration projects in "Focus Areas" of the state.	U.S. Fish, Wildlife & Parks
Planning Assistance to States	Provides assistance to States in the planning for the development, utilization, and conservation of water and related land resources.	USACE
Renewable Resource Development Grant	Provides funding to protect, conserve, or develop renewable resources, including water.	Montana DNRC, Conservation and Resource Development Division

Table 4.2-2 Alternative Mitigation Funding Sources

Name	Description	Agency
Rural Development Grants	Provides grants and loans for infrastructure and public safety development and enhancement in rural areas.	USDA, Rural Development
Rural Fire Assistance Grant (RFA)	Funds fire mitigation activities in rural communities	National Interagency Fire Center
SBA Pre-Disaster Mitigation Loan Program	Provides low-interest loans to small businesses for mitigation projects.	US Small Business Administration (SBA)
Small Flood Control Projects	Authority of USACE to construct small flood control projects.	USACE
Streambank & Shoreline Protection	Authority of USACE to construct streambank stabilization projects.	USACE
Wetland Program Development Grants (WPDGs)	Provides funding for studies related to water pollution prevention.	EPA

The concept of a Private Advisory Group has also been proposed. This group would represent the interests of private industry, small and large businesses, and individuals on the State Hazard Mitigation Team. In addition, this group could generate private funds for mitigation projects.

4.3 STATE CAPABILITY ASSESSMENT

Montana is a large, diverse state. From the mountainous areas of the west to the open plains in the east, the state varies in climate, terrain, and hazards from one area to the next. This diversity is both an asset and a challenge when it comes to mitigation. The challenges of mitigation in a diverse state arise because what may work in one community may not work in another and priorities may vary significantly from county to county. This variety of priorities and projects, however, requires local governments to ultimately decide what mitigation measures and/or actions their community really needs. This process encourages creativity, effectiveness, and high levels of local involvement when it comes to mitigation projects. With this perspective in mind, mitigation is driven by the local governments and individuals in Montana. They typically initiate, develop, and implement mitigation projects.

The state still plays an important role in creating opportunities, coordinating, and supporting mitigation actions. At the state level, mitigation is achieved through a number of departments in a variety of ways. Montana does not have one central mitigation office. Floodplain and fire issues are handled by different divisions within the Department of Natural Resources and Conservation while much of the mitigation grant funding is managed by the Disaster and Emergency Services Division of the Department of Military Affairs. Again, this diversity can sometimes be a challenge, however, involving multiple agencies in mitigation allows for the integration of mitigation into other programs and the opportunity for active participation across state government.

4.3.1 State Mitigation Structure

State Hazard Mitigation Officer (SHMO)

The SHMO in Montana is part of the Department of Military Affairs, Disaster and Emergency Services Division (DES). This SHMO is the only full time employee devoted to mitigation in Disaster and Emergency Services and coordinates the HMGP and PDM programs. A part-time employee also assists the SHMO in managing the HMGP program, as funding allows. The Earthquake Program within DES is coordinated by the Public Information Officer. A

landmark partnership has been developed between the Department of Interior, Bureau of Land Management and Montana Disaster and Emergency Services. Both agencies share similar requirements for mitigation planning. The Pre-Disaster Mitigation planning requirements are quite similar to the Community Wildfire Protection Plan requirements. Therefore, a joint venture between the two organizations has been recognized with additional personnel support for fire mitigation being proposed to integrate the two similar efforts. Presently, the essential responsibilities of the SHMO include:

- Coordinate the Pre-Disaster Mitigation and Hazard Mitigation Grant Programs
- Maintain the Montana Hazard Mitigation Plan
- Maintain the Montana Hazard Mitigation Administrative Plan
- Review local mitigation plans
- Provide mitigation training to state and local officials
- Develop mitigation partnerships
- Lead the State Hazard Mitigation Team

DES District Representatives

The DES District Representative acts on behalf of Montana DES and is primarily responsible for assisting local and tribal government with the development of their emergency management program which includes mitigation planning. The district representative is the main conduit for implementation of various emergency management, federal, state and division initiatives affecting local and tribal government and involves coordinating with other cooperators. There are six DES District Representatives within the state.

State Floodplain Management and Dam Safety

The Department of Natural Resources and Conservation (DNRC), Water Resources Division coordinates the National Flood Insurance Program and the associated Community Assistance Program, Flood Mitigation Assistance Grant, and Community Rating System (CRS) in Montana. The Dam Safety Program is also coordinated by the DNRC and includes the permitting of 95 high-hazard dams within the state. The Water Projects Bureau at DNRC manages 26 high-hazard dams owned by the state. Federal dams are not included in the permitting process.

State Fire Prevention and Education

The Department of Natural Resources and Conservation (DNRC), Forestry Division coordinates the fire mitigation programs in the State of Montana, including the National Fire Plan. The National Fire Plan and associated mitigation programs are managed by one full-time employee and two part-time employees funded by federal grants. DNRC protects 50 million acres of state and private forest and watershed lands.

Homeland Security

The Montana Homeland Security Task Force, chaired by Montana Disaster and Emergency Services (DES), is the key organization coordinating homeland security programs in Montana. Many agencies from across the state are represented on this task force. The Montana Homeland Security Strategic Plan addresses the mitigation opportunities for homeland security. Through this plan, mitigation of terrorist events is coordinated by the Homeland Security staff within DES.

State Hazard Mitigation Team (SHMT)

The SHMT is a team of state and local officials called upon by the SHMO or Governor's Authorized Representative when needed for additional mitigation support. Typically, this additional support is requested following a Presidential Disaster Declaration. The responsibilities of the SHMT include:

- Participating in planning meetings and report development
- Survey post-disaster damage areas and potential project sites
- Coordinate mitigation activities for their agency
- Assist with project selection and development

Mitigation Review Committee

The Mitigation Review Committee is a subcommittee of the State Hazard Mitigation Team. This subcommittee is responsible for the review and selection of mitigation projects, as needed. Its membership is decided upon annually or as needed by the State Hazard Mitigation Team. For additional information on the members and responsibilities of the Mitigation Review Committee, see *Section 5.3.1*.

4.3.2 Pre-Disaster Mitigation Policies, Programs, and Capabilities

Pre-disaster mitigation programs are the cornerstone of mitigation in Montana. Preventing disasters before they occur and not just after they happen is essential to mitigating losses. Historically, Montana has not had a disaster that results in millions of dollars in HMGP funds. Therefore, the pre-disaster mitigation programs are heavily relied on for mitigation funding.

Most of the mitigation efforts in the past three years have been focused on completing the remaining Local PDM Plans. Local jurisdictions with approved plans have completed a number of mitigation projects since 2004; but they have all been Post Disaster HMGP funded projects (See *Section 4.3.3*). Since the 2004 State Plan, state-wide mitigation projects that have been implemented include those funded by FEMA through the PDM-C Program (**Table 4.3-1**) and various fuel mitigation projects funded through the National Fire Plan (See *National Fire Plan and Fire Prevention discussion below*).

Pre-Disaster Mitigation Planning

The Pre-Disaster Mitigation Program for planning is making an impact in Montana. All 56 counties and seven tribes are participating in developing Pre-Disaster Mitigation Plans. As of June 19, 2007, 43 Local PDM Plans had been approved by FEMA (41 county plans and two tribal plans) and 20 plans were in the advanced drafting stage (15 county plans and five tribal plans). The State's approach to reviewing, coordinating and integrating local mitigation plans has allowed for all but three county plans to be included in this State Plan update. All Local PDM Plans will be linked to the State Plan during the next State Plan update cycle in 2010.

Integrating the Local PDM Plans into the State Plan for the 2007 State Plan Update involved: 1) interpreting the local hazard "risk" and presenting this data on statewide maps in the State Plan that are electronically linked to the local plan documents, 2) entering local mitigation projects into a database, 3) categorizing local projects consistent with State Plan goals and, 4) compiling potential losses estimates from the local plans for buildings, society and the economy for each hazard profiled in the State Plan. Appendices with supporting documentation are provided for each DES District (**Appendices B through G**). Integration

of local plans into the State Plan took place over approximately nine months from November 2006 through July 2007. **Appendix I** contains a Local Plan Index that provides the electronic user of this document access to County and Tribal PDM Plans for 59 of Montana's 62 jurisdictions.

In order to improve the local plans, the SHMO and SHMT will standardize the way "risk" is looked at so that a comparable approach can be used in future local plan updates. Local plans may also improve through the availability of district-level mitigation documentation in the State Plan. This will enhance coordination between counties and tribes where hazard vulnerability crosses jurisdictional lines. The State Plan will serve as a reference document for future local plan updates. Local capabilities will be enhanced through the continued technical assistance offered by the SHMO and SHMT.

Pre-Disaster Mitigation Competitive Programs

Since 2004, FEMA has awarded competitive PDM grants (PDM-C) to the State for mitigation planning purposes and to a number of Montana jurisdictions for mitigation construction projects. These projects require a 25 percent local match. **Table 4.3-1** presents a summary of these projects since 2003. For specific grant project, the State uses benefit-cost reviews to determine which projects maximize benefits relative to their cost.

Table 4.3-1 PDM-C Projects Since 2004

Year	Application Title	Name	Non-Federal Share	Federal Share	Federal Share %
2005	Missoula County Grant Creek Flood Mitigation Project	Missoula County	\$1,145,000	\$3,000,000	75%
2005	Powell County/City of Deer Lodge Flood Hazard Mitigation Project	Powell County	\$667,409	\$2,002,228	75%
2005	Blacktail Deer Creek City/County Flood Mitigation Project	Beaverhead County	\$160,260	\$435,000	75%
2005	Remaining and Unfunded Montana Communities Planning Grant Application	MT DES	\$69,500	\$208,500	75%
2005	Montana University System Multi-Hazard Planning	Montana University System	\$85,006	\$255,017	75%
2006	State of Montana Multihazard Mitigation Plan Update	MT DES	\$37,484	\$112,438	75%
2007	Petroleum County PDM Plan Update 2007	Petroleum County	\$694	\$6,250	90%
2007	Northeastern Montana PDM Plan Update 2007	Valley County	\$9,167	\$27,500	75%
2007	Helena South Hills Fuel Reduction 2007	Lewis & Clark County DES	\$34,319	\$102,956	75%
2007	Butte-Silver Bow County Geological Hazards	Butte-Silver Bow City/County	\$70,204	\$210,329	75%
TOTAL			\$1,134,043	\$6,360,218	-

Capabilities:

- The PDM planning program has elicited a high participation rate by Montana counties and tribes.
- Alternative sources of funding have been identified at the state and local levels to support this program.
- Communities have found assessing their hazards to be quite beneficial and informative.

Limitations:

- Only one person at the State level is devoted to reviewing plans and projects and providing training for this program at the State level. Montana DES should request

additional staff for the SHMO during each budget cycle in order to improve PDM outreach and support for the entire state.

- At times, more counties/tribes have been interested in participating than funding to support their efforts has been available.

National Fire Plan and Fire Prevention

Fire mitigation programs coordinated by the State go through the DNRC, Forestry Division. One full-time and two half-time employees coordinate the National Fire Plan funding from the U.S. Forest Service and other related prevention and education programs. A State Steering Committee assists with making decisions for the program. Since 2004, over 700 fuel mitigation projects have been completed in Western Montana through funding provided by National Fire Plan contributing agencies, as discussed below.

In 2007, Montana received nearly \$1.2 million in federal funding for hazardous fuel mitigation. Six of 10 proposals submitted by the Montana DNRC to the Western Wildland Urban Interface (WWUI) grant program were successful. These projects represent hazardous fuels reduction treatments on approximately 1,900 acres of private property within the WUI in Missoula, Flathead, Mineral, Ravalli, Lincoln, Sanders, Lewis and Clark, and Stillwater Counties. The projects are offered as a cost-sharing partnership with homeowners, who not only pay for part of the work, but must agree to maintain the project into the future. Most projects also contain an education element to provide resources for homeowners about how to protect their property from wildfires. The USDA Forest Service provides the funds, which are delivered to grant recipients through state foresters and their network of project partners. Montana DNRC has a network of local government partners and other organizations who manage fuel mitigation projects at the local level.

The Community Protection Fuels Mitigation (CPFM) Grant Program provides cost-share assistance in Montana for fuels treatment on non-federal lands adjacent to federal lands that are also scheduled for treatments. It provides an opportunity for landscape-level treatment across ownerships. DNRC administers this program in direct partnership with the Forest Service.

Fuel mitigation projects have also been funded by BLM directly through Community Assistance Agreements to local entities such as TRICO (Lewis and Clark, Jefferson, and Broadwater Counties), the Seeley-Swan coalition, and others.

Capabilities:

- The potential for significant mitigation funding exists, if the projects qualify for and are selected for the nationally competitive National Fire Plan programs.
- Other federal land management agencies have similar funding sources available and work to complete fire mitigation projects directly with the local communities.
- State fire suppression costs can be used as match for these federal grants.
- The National Fire Plan program has created a well-coordinated mitigation system for planning and projects at the state level.
- Numerous partnerships have been and continue to be developed through this program.

Limitations:

- Funding for fire mitigation varies greatly from year to year due to the competitive nature of the program. No baseline funding exists for fire mitigation.
- The State of Montana does not have a state funded fire mitigation initiative.

Earthquake Program

This program, coordinated by the DES Public Information Officer, is primarily a public education and outreach program. Each October is Earthquake Preparedness Month in Montana, and media outlets inform residents of preparedness and mitigation techniques they can take. Briefings and training sessions have also been conducted through this program. The HMGP program has previously funded earthquake mitigation projects in coordination with the public outreach of this program. Montana Bureau of Mines and Geology, Earthquake Studies Office heavily supports this program through research, education, and outreach.

Capabilities:

- Coordinating this program with the Public Information Officer position allows for extensive earthquake preparedness outreach.

Limitations:

- Specific funding for mitigation projects is not present at the state level for this program, and therefore, projects are dependent on grant programs.
- Only a limited amount of time can be devoted to this program as it is managed by an employee with additional responsibilities.

National Flood Insurance Program (NFIP) and Community Rating System (CRS)

Through funding from the Community Assistance Program, the State NFIP is coordinated by the Department of Natural Resources and Conservation. In Montana, 128 out of 139 communities participate in the National Flood Insurance Program. Twelve of those communities participate in the CRS program (**Table 4.3-2, Figure 4.3-1**). Those communities that have an identified flood hazard but are not part of the NFIP are listed in **Table 4.3-3** and shown in **Figure 4.3-2**.

Since 1978 over \$5.3 Million has been paid out in flood insurance claims in the State of Montana, and as of February 2007, 3,499 policies have existed insuring over \$525 Million in property. This program, specifically managed at the local level, is supported by the State Floodplain Manager, part of the Department of Natural Resources and Conservation, Water Resources Division.

Capabilities:

- The NFIP allows the State to assist counties and cities with floodplain problems.
- The majority of Montana lands are regulated as part of the NFIP.

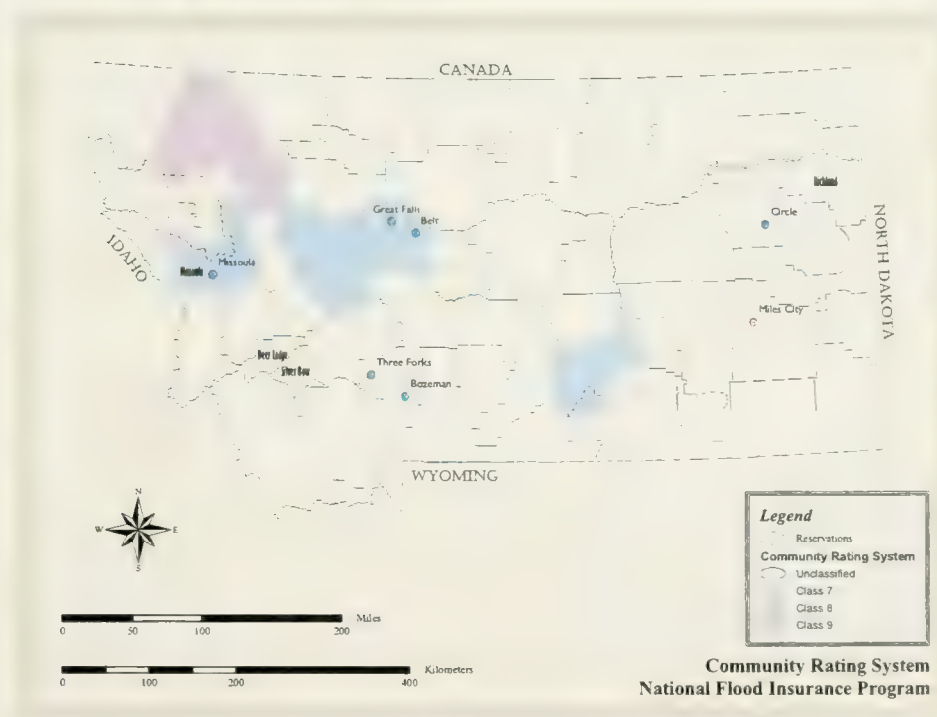
Limitations:

- Very little funding is available for NFIP education.
- Counties and cities are limited in staffing. Often the local floodplain manager has multiple duties and only issues one or two floodplain permits a year.
- Local floodplain managers, because of their other duties and infrequent floodplain development, often have very little training in the NFIP.

Table 4.3-2 Community Rating System (CRS) Participating Communities¹⁹

Community	CRS Class
City of Bozeman	Class 7
City of Great Falls	Class 8
Town of Belt	Class 8
Cascade County	Class 8
Town of Circle	Class 8
Lewis & Clark County	Class 8
Missoula County	Class 8
City of Missoula	Class 8
Town of Three Forks	Class 8
Yellowstone County	Class 8
Flathead County	Class 9
City of Miles City	Class 9

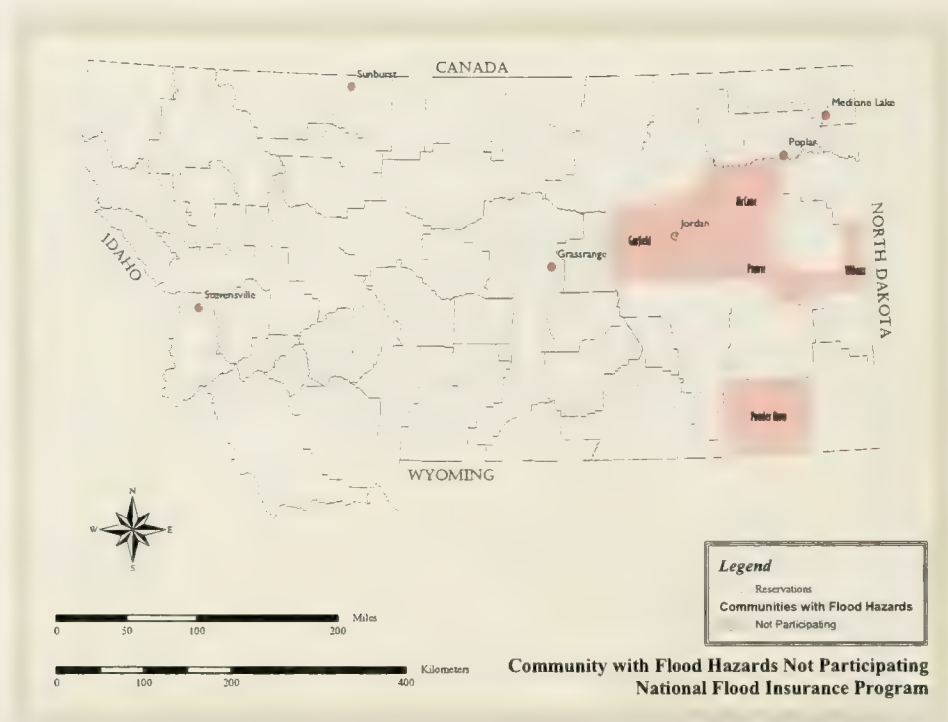
Figure 4.3-1 Communities Participating in the National Flood Insurance Program Rating System



¹⁹ National Flood Insurance Program (NFIP), Community Rating System (CRS), Federal Emergency Management Agency, Federal Insurance Administration, Washington, DC, May 1, 2007.
<http://www.fema.gov/business/nfip/crs.shtm>

Table 4.3-3 Communities with Flood Hazard Areas Not Participating in the NFIP²⁰

Community	Effective Date
Garfield County	03/20/1980
Town of Grass Range	09/21/1993
Town of Jordan	06/27/1976
McCone County	06/04/2008
Town of Medicine Lake	07/09/1977
City of Poplar	06/04/2008
Powder River County	05/15/1980
Prairie County	05/08/1980
City of Stevensville	09/07/1999
Town of Sunburst	01/10/1976
Wibaux County	03/04/1988

Figure 4.3-2 Montana Communities with Flood Hazards Not Participating in the NFIP

²⁰ National Flood Insurance Program Community Status Book, Federal Emergency Management Agency, Federal Insurance Administration, Washington, DC, July 9, 2007. <http://www.fema.gov/fema/csb.shtm>

Map Modernization Program

The Map Modernization program (Map Mod) is a funded initiative put in place by Congress to update floodplain mapping across the country. In Montana, this program is being implemented in three phases. The first phase at \$30,000 is to develop a business plan for the state's map modernization program. Phase 2, currently in the application stages for \$90,000, is to add an employee to manage the program. Phase 3 is to actually map new areas and digitize existing maps. This program is managed by the Department of Natural Resources and Conservation, Water Resources Division.

Map Mod is currently in Phase 3. There is a full time Map Modernization Management Support position and a half time outreach specialist funded through FEMA. There are approximately 10 projects that have completed the DFIRM process and are effective and approximately 19 on-going projects that are being mapped as single jurisdictions, partial county-wide or full county-wide DFIRMS. Of those Missoula, Flathead, Yellowstone, Cascade, and Lewis and Clark counties are being mapped through the Cooperating Technical Partners (CTP) program, which means that FEMA obligates the funds directly to the DNRC who contracts out the mapping work. It is anticipated that DNRC will start a partial county-wide mapping project in Fergus County in FY 2007 through the CTP program. Priorities for FY 2008 are Lake, Ravalli and Butte-Silver Bow counties.

Capabilities:

- Nationally, Congress has allocated a significant amount of funding for this initiative.
- Currently, the program does not require State match which eliminates the greatest limitation in similar programs.

Limitations:

- Montana is not as competitive as other states for national flood funding due to our low population and historic damages.
- With the State population increasing and explosive growth in some places, the mapping is often outdated and cannot keep up with the growth.
- To maximize the continuity of the program, state funding is needed to supplement the federal funding.

Flood Mitigation Assistance Program

In a typical year, about \$100,000 in FMA funds are available for Montana projects, however, most of these funds typically go unspent due to a lack of homeowner interest in the program. This program restricts mitigation activities to NFIP repetitive loss properties. With only 43 repetitive loss properties in Montana, a limited number of opportunities exist, and many of those opportunities are lost due to the 25 percent match requirement. Without state funds to meet the match requirements, the match responsibility is passed on to the homeowner. Frequently, the homeowner is not able or willing to provide the match.

Capabilities:

- The program is focused on the most vulnerable structures based on flood insurance losses.

Limitations:

- The 25 percent match represents a significant barrier for many homeowners.
- With the program being restricted to repetitive loss properties, relatively few opportunities for mitigation exist.

Dam Safety Program

The dam safety program oversees and regulates the major, non-federal or tribal dams in Montana. Ninety-two dams are currently regulated by the State of Montana; however, the National Inventory of Dams listed about 2,800 dams in Montana. Many of the dams regulated by the State are required to have permits and emergency action plans. This program is managed by the DNRC, Water Resources Division.

Capabilities:

- The dam safety program provides regulations and standards for most high impact dams, and therefore, ensures an initial level of safety.

Limitations:

- Over 2,700 significant and low hazard dams in Montana are not regulated according to the National Inventory of Dams. In many cases, maintenance and repair may be needed.

Homeland Security

Funding for Homeland Security vastly outweighs the funding available for traditional hazard mitigation, with over \$65 million in grant funding from 2001-2006. This funding is primarily directed toward pre-identified preparedness activities such as training, exercises, and equipment. From a mitigation perspective, since terrorism is such a highly uncertain and variable type of hazard, most activities that are being conducted through the homeland security program are mitigation in some form. Preparing our responders and gathering intelligence may mitigate an event from occurring or may reduce the impacts from an event. In this sense, these activities can be considered mitigation, although, not in the traditional sense of the word.

Capabilities:

- An enormous amount of funding is being used to prepare our state to prevent and respond to a terrorist attack.
- Much of the equipment and training being conducted for homeland security purposes can also be used for any hazard or event, natural or man-made.

Limitations:

- Homeland security funds are quite specific in what they can be used for and do not allow for a lot of flexibility.
- Only actions identified in the local and state strategic plans can be funded.

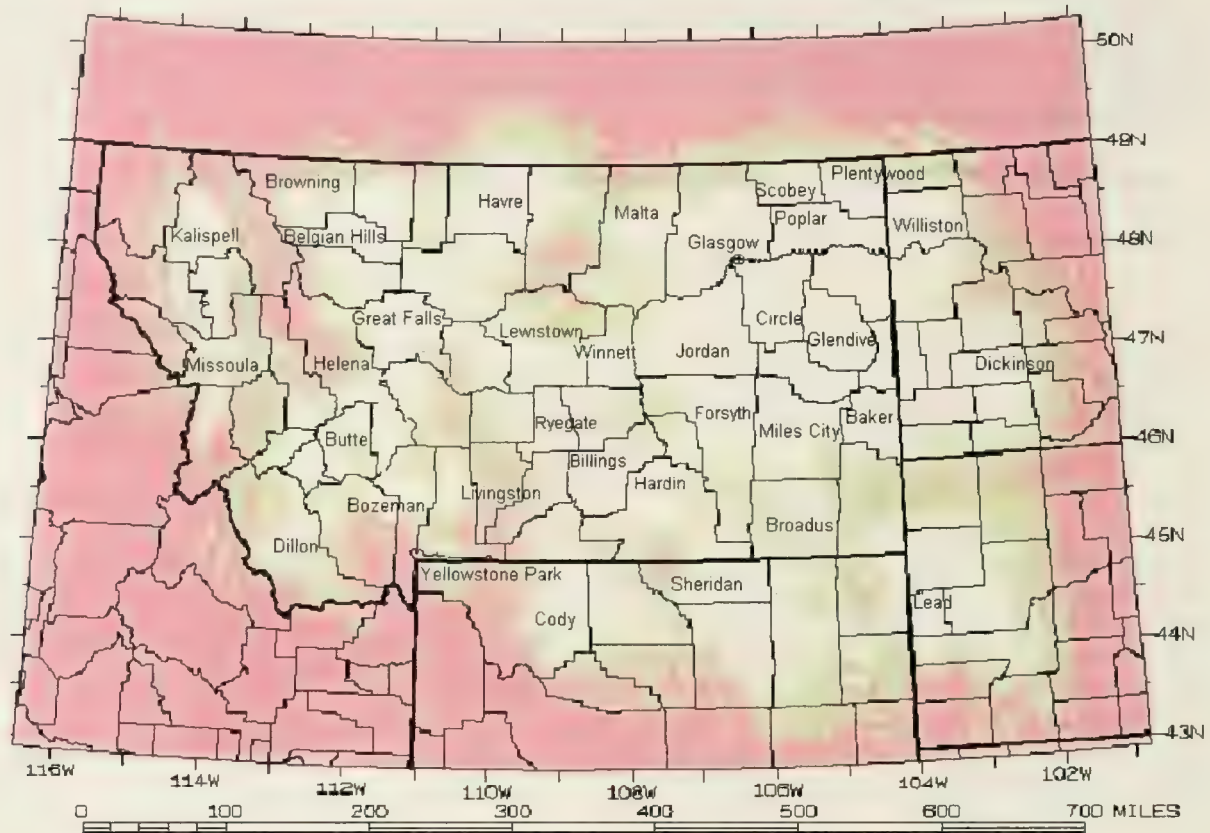
National Weather Service Initiatives

The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community. The NWS initiatives, described below, are making great strides in getting the hazard mitigation message out to citizens of Montana.

[illegible]

The **NOAA Weather "All Hazard" Radio** (NWR) program is provided as a public service by the National Oceanic and Atmospheric Administration (NOAA). NWR is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest NWS office. In conjunction with Federal, State, and Local Emergency Managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages). **Figure 4.3-4** shows the NOAA weather radio sites and coverage in Montana.

Figure 4.3-4 NOAA Weather Radio Sites and Coverage in Montana.



The coverage in **Figure 4.3-4** is shown in a three color format, which relates to three estimated signal levels, as follows: White: Signal level of greater than 18dBuV: Reliable coverage; Green: 0dBuV to 18dBuV: picking up a signal is possible but unreliable; and, Pink: Less than 0dBuV: Unlikely to receive a signal.

CoCoRaHS is an acronym for the Community Collaborative Rain, Hail and Snow Network, a program sponsored by NOAA. CoCoRaHS is a grassroots volunteer network of weather observers working together to measure and map precipitation (rain, hail and snow) in local communities. By using low-cost measurement tools, stressing training and education, and utilizing an interactive web-site, they provide accurate high-quality precipitation data to observers, decision makers and other end-users on a timely basis.

Winter Awareness Week, Severe Weather Awareness Week are two other NWS public outreach programs aimed to mitigate the effects of natural hazards through education.

4.3.3 Post-Disaster Mitigation Policies, Programs, and Capabilities

Hazard Mitigation Grant Program

Following a Presidential Declared Disaster, Montana has historically received 15 percent of eligible disaster costs in funding for mitigation activities. This program, coordinated through DES by the SHMO and a part-time mitigation specialist, has funded 54 mitigation projects totaling over \$2.3 million following 8 disasters since 1986. Typically, the HMGP program is opened up for all counties, not just those in the disaster area, and the projects are not restricted to those hazards involved in the disaster. This allows for maximum flexibility and quality in the projects submitted for funding. **Table 4.3-4** shows the various disasters and associated HMGP funding. There have been no Presidential Declared Disasters in Montana since 2002.

Table 4.3-4 HMGP Funding by Disaster

Date	FEMA Disaster #	Location	Disaster Type	HMGP funding
February 1996	1105	Western Montana	Flooding, Winter Storms	\$268,598
March 1996	1113 ²¹	Milk River, Northern Montana	Flooding, Spring Storms (road, culvert, and bridge damage)	\$207,000
Spring/Summer 1997	1183 ²²	Missouri and Yellowstone Rivers	Flooding (roadway and infrastructure damage)	\$883,110
Summer 2000	1340 ²³	Statewide	Wildfire	\$290,766
Fall 2000	1350 ²⁴	Eastern Montana	Winter Storms (heavy snow loads, drifting, power outages)	\$284,005
Spring 2001	1377 ²⁵	Big Horn County, Crow Reservation	Winter Storms (heavy snow loads, power outages)	\$105,770
June 2001	1385 ²⁶	Gallatin, Missoula, and Powell Counties	Spring Storms (heavy snow loads, power outages)	\$137,349
June 2002	1424 ²⁷	Northern Montana	Spring Storms, Flooding (heavy snow loads and rain, power outages, road damage)	\$207,984
			TOTAL	\$2,384,582

Capabilities:

- As many projects as possible are funded through HMGP, and the program is typically opened up to the entire state and all identified natural hazards following a disaster.

Limitations:

- Montana is required to follow the same procedures as a larger state but with generally less funding available for projects and their management.
- With historically few declared disasters in Montana, mitigation funding from HMGP is both sporadic and very limited.

²¹ Hazard Mitigation Survey Team Report, FEMA-1113-DR-MT, FEMA Region VIII, June 1996.

²² Interagency Hazard Mitigation Team Early Implementation Strategy Report in Response to DR-1183-MT, August 1997.

²³ Hazard Mitigation Survey Team Report, FEMA-1340-DR-MT, FEMA Region VIII, Declared August 30, 2000.

²⁴ Hazard Mitigation Survey Team Report, FEMA-1350-DR-MT, FEMA Region VIII, March 2001.

²⁵ Hazard Mitigation Survey Team Report, FEMA-1377-DR-MT, FEMA Region VIII, Declared May 28, 2001.

²⁶ Hazard Mitigation Survey Team Report, FEMA-1385-DR-MT, FEMA Region VIII, October 2001.

²⁷ Hazard Mitigation Survey Team Report, FEMA-1424-DR-MT, FEMA Region VIII, May 2003.

Public and Individual Assistance (PA and IA) Mitigation

When Presidential disaster PA and IA funds become available for repairs to public and private structures and infrastructure, mitigation opportunities are taken whenever possible. Although not a separate program, mitigation is conducted following a disaster through the recovery programs. Public assistance and individual assistance officers are trained in mitigation and will directly and indirectly mitigate hazards when repairing the damages. This mitigation is an integrated part of the disaster recovery and cannot be easily put into dollar amounts.

Capabilities:

- Mitigation during recovery allows for "cheaper" mitigation because the mitigation is done while repairing damages.
- Immediately following a disaster, the public and local officials may be more willing to invest in mitigation due to both increased awareness and public pressure.

Limitations:

- Typically, following a disaster, recovery, and not mitigation, is the primary objective.
- The mitigation costs cannot be easily separated from the recovery costs.
- Identification of mitigation opportunities depends on the recovery officers' abilities to notice them.

4.3.4 Evaluation of State Laws and Regulations

An evaluation of Montana laws and regulations was conducted to identify those sections that relate to mitigation. Many laws that can be related to mitigation are "buried" in various sections, such as Montana Code Annotated (MCA), Title 20, Chapter 6, Part 6 (MCA 20-6-621) which states that school locations are to meet building codes. Only the major sections as they pertain to mitigation will be listed here. See **Table 4.3-5** for specific legislation.

Table 4.3-5 Montana Laws and Regulations Related to Mitigation

Reference	Description	Capabilities	Limitations
MCA Title 7	Local Government	<ul style="list-style-type: none"> ▪ Allows local governments to construct public buildings, utility services, roads, and bridges ▪ Gives local government the right to adopt their own building codes 	<ul style="list-style-type: none"> ▪ Does not require local building codes or enforcement
MCA 10-3	Disaster and Emergency Services	<ul style="list-style-type: none"> ▪ Establishes state and local emergency management organizations and responsibilities 	<ul style="list-style-type: none"> ▪ Mentions mitigation in a very limited fashion
MCA 17-7-2	Long Range Building Program	<ul style="list-style-type: none"> ▪ Establishes the Long Range Building Program for State facilities ▪ Consolidates and prioritizes requests for significant building improvements and new construction 	<ul style="list-style-type: none"> ▪ Does not require the consideration of disaster prevention or mitigation.
MCA 50-3	State Fire Prevention and Investigation Program	<ul style="list-style-type: none"> ▪ Establishes State Fire Prevention Program ▪ Establishes fire inspection program for State buildings 	

Table 4.3-5 Montana Laws and Regulations Related to Mitigation

Reference	Description	Capabilities	Limitations
MCA 50-60	Building Construction Standards	<ul style="list-style-type: none"> Authorizes State Building Code Allows for local county, city, or town building codes 	<ul style="list-style-type: none"> Except for the energy, plumbing, and electrical codes, the State Building Code is not applicable for residential structures less than five dwelling units, unless required by local jurisdictions.
MCA 50-61	Fire Safety in Public Buildings	<ul style="list-style-type: none"> Establishes fire safety regulations for public buildings 	
MCA 50-62	Fire Hazards	<ul style="list-style-type: none"> Allows for remediation, removal, or demolish of structures that are considered fire hazards 	
MCA 50-79	Nuclear Regulation	<ul style="list-style-type: none"> Establishes regulations for sources of ionizing radiation 	
MCA Title 60	Highways and Transportation	<ul style="list-style-type: none"> Authorizes maintenance and creation of State roads and roadway infrastructure 	<ul style="list-style-type: none"> No requirements for the mitigation of hazards
MCA Title 67	Aeronautics	<ul style="list-style-type: none"> Provides regulations for airports and aircrafts 	
MCA Title 69	Public Utilities and Carriers	<ul style="list-style-type: none"> Establishes requirements for utility providers, including the construction of such facilities 	<ul style="list-style-type: none"> Does not require hazard considerations
MCA 75-1	Montana Environmental Policy Act	<ul style="list-style-type: none"> Establishes procedures for environmental reviews 	
MCA 75-2	Air Quality	<ul style="list-style-type: none"> Establishes air quality regulations 	
MCA 75-5	Water Quality	<ul style="list-style-type: none"> Establishes water quality regulations 	
MCA 75-6	Public Water Supplies, Distribution, and Treatment	<ul style="list-style-type: none"> Establishes regulations for the construction and operation of public water supplies and wastewater 	
MCA 75-7	Aquatic Ecosystem Protections	<ul style="list-style-type: none"> Requires the protection of streambeds and lakeshores 	
MCA 75-20	Montana Major Facility Siting Act	<ul style="list-style-type: none"> Establishes regulations regarding the placement of major energy production or transmission facilities 	<ul style="list-style-type: none"> Although considerations for the public's health and safety are provided, this act does not require an evaluation of natural or man-made hazards of the facility location.
MCA 76-1	Growth Policy	<ul style="list-style-type: none"> Requires local governments to develop growth policies by October 2006. Growth policies are the steering documents for zoning ordinances and subdivision regulations. 	<ul style="list-style-type: none"> Does not require the consideration of natural hazards. A bill requiring a strategy for addressing natural hazards failed in 2001. Growth policies are not regulatory and do not have authority to deny land use.
MCA 76-2	Planning and Zoning	<ul style="list-style-type: none"> Allows local governments to establish and manage zoning districts 	<ul style="list-style-type: none"> Does not establish statewide zoning or require it at the local level
MCA 76-3	Montana Subdivision and Platting Act	<ul style="list-style-type: none"> Requires local governments develop subdivision regulations and enforcement Establishes policy to ensure subdivisions are in the public interest 	<ul style="list-style-type: none"> Does not establish statewide standards for hazards

Table 4.3-5 Montana Laws and Regulations Related to Mitigation

Reference	Description	Capabilities	Limitations
MCA 76-5	Floodplain and Floodway Management	<ul style="list-style-type: none"> Establishes state floodplain management program and regulations Requires a Flood Protection Elevation of two feet above the 100-year Base Flood Elevation Establishes a Floodway Obstruction Removal Fund 	
MCA 76-6	Open-Space Land and Voluntary Conservation Easement Act	<ul style="list-style-type: none"> Provides regulations for open space designations and compensation 	<ul style="list-style-type: none"> Does not emphasize open space in hazardous areas
MCA 76-11-1	Natural Resource Protection from Fire	<ul style="list-style-type: none"> Directs DNRC to protect natural resources from fire 	
MCA 76-13	Timber Resources	<ul style="list-style-type: none"> Provides for the protection of forest resources Establishes regulations to prevent uncontrolled fire starts Allows for tree disease and insect control 	
MCA 76-14	Montana Rangeland Resources Act	<ul style="list-style-type: none"> Allows for sagebrush and weed management 	<ul style="list-style-type: none"> Does not specifically mention fire management
MCA 85-15	Montana Dam Safety Act	<ul style="list-style-type: none"> Allows for safe construction of dams Provides authority for dam permitting, inspection, and repair 	
MCA 90-15	Natural Resource Information System	<ul style="list-style-type: none"> Authorizes the development of a natural resource information system and a natural heritage program 	

The State laws in the Montana Code Annotated (MCA) are then translated into the Administrative Rules of Montana (ARM). This document specifies the rules as they relate to the MCA. For example, the International Building Code (IBC), 2006 Edition is adopted as the state building code through ARM 24.301. Individual agencies are responsible for identifying and addressing the shortcomings with mitigation in their own agency rules.

4.3.5 Development in Hazard Prone Areas

Although experiencing declining populations in many eastern rural counties, Montana has been experiencing rapid population growth in the south-central and western parts of the State since the 1930's. Currently, some locations in the state are undergoing rapid growth. With that growth comes challenges in hazard mitigation. Many hazards, such as winter storms, wind, hail, drought, and terrorism, are not limited to specific areas and the vulnerability associated with the population growth certainly is increasing. The impact of future development is discussed for each hazard in *Section 3.3*.

Western Montana has been the area with the most concentrated growth in recent years. This section of the State includes several known and unknown seismic faults with prehistoric and historic major earthquake events, and therefore, growth is taking place in high probability earthquake hazard areas. Currently, little zoning or development regulations in fault areas is occurring.

The state floodplain requirement of a freeboard of two feet reduces the vulnerability of new development in the mapped flood zones. This proactive approach to floodplain management helps in making new construction less prone to flood damages. However, the program is

only as good as the mapping, and in some instances, development may be occurring in unmapped, flood prone areas.

Of greatest concern and magnitude, however, is the development occurring in the wildland/urban interface areas. With the greatest wildland fire hazards existing in western Montana and much of the growth occurring in this part of the State, development is occurring in the hazard prone areas. Mitigating this problem are the local planning boards and fire departments. Most subdivisions undergo reviews for fire safety. In many cases, the development cannot be completely prevented, but measures are put in place such as water supply and roadway requirements that may help reduce the risk through fire suppression during an event. Forested mountains continue to be places that are popular to live and accelerated growth continues in these areas.

Several laws were passed during the 2007 legislative session that move Montana toward avoiding future development in hazard areas²⁸. Senate Bill 201 creates a smart growth planning process that cities and counties can use together to plan for efficient growth inside and adjacent to cities and towns. Previously there was no clear process in the law that cities and counties could follow to get ahead of infrastructure and other impacts of new growth inside cities and on the urban fringe. The lack of a clear planning process tied to zoning to implement the plans often led to a contentious process for new development. No one knew what standards would be applied – not local government officials, the developer or the surrounding neighbors. Senate Bill 201 allows a streamlined subdivision review if a city or county engages its public in planning and adopts zoning that implements the plans. They also must avoid or mitigate adverse impacts on wildlife, waters, the natural environment, health and safety, and local services.

Senate Bill 51 requires that growth policies identify where the WUI areas are located to help in planning to protect people and property from wildfire. More development has been taking place, and much more is projected, in rural locations like wooded hills and mountainsides where wildfire is a natural and relatively common phenomena. The legislation is an important step to help local and state government get ahead of wildfire threats and spiraling fire-fighting costs. More homes to protect in the WUI means higher taxes for all Montanans, unless the new homes are kept out of areas of high wildfire hazard and are required to meet clear water supply, defensible space, access, and construction standards. Senate Bill 51 clearly restates that a subdivision shall be denied if it does not mitigate or avoid threats to public health and safety. It also requires that subdivision regulations protect people and property from wildland fire. It also engages the Department of Natural Resources and Conservation (DNRC) and the Department of Labor and Industry in developing rules and providing incentives to help cities and counties get ahead of growth in the WUI. This will include identifying best planning and land use practices for WUI development. The bill clarifies that counties and cities can regulate fire-related construction techniques – such as requiring sprinklers in certain circumstances or prohibiting cedar shake roofs – through their subdivision regulation if they adopt the Department of Labor and Industry rules authorized by Senate Bill 51.

²⁸ Montana Smart Growth Coalition, 2007. Smart Talk. Spring 2007. Volume 4, No. 1.

4.3.6 State Funding Capabilities

The Disaster and Emergency Services Division of the Department of Military Affairs in Montana has a limited budget to provide the very basic emergency management services. This division with a staff of 23 (including six field representatives) in Fiscal Year 2007 had \$1.148 million for personnel expenses, about \$196,880 for operating expenses (a decrease of \$18,120 from 2004), and zero dollars for equipment (a decrease of \$2,500 from 2004). This minimal budget leaves little room for additional mitigation support. Approximately 50 percent of this budget is funded federally through EMPG funds and the other 50 percent is the state's required match paid from the state's general fund. The remaining EMPG funds are used to fund county and tribal DES coordinators. Most county coordinators are one-half or one-quarter time for Disaster and Emergency Services with other responsibilities. Some have hired coordinators for homeland security grants, however, most have not. Little time and funding is available to these coordinators for mitigation activities. As with DES, the other State departments managing mitigation programs do not have State funds available for mitigation purposes. Available State funds are currently used to provide personnel resources, and in some cases, those personnel resources are also funded through federal funds requiring state match.

Historically, Montana has seen eight-year cycles that feature revenue increases for seven years – with the more rapid growth in the 5th, 6th and 7th years – capped with a revenue drop in the 8th year. General fund revenue grew by more than 10 percent for FY 2004, FY 2005 and FY 2006. FY 2007 revenue continued that trend. Changes to the State budget in the 2007 legislative special session included a smaller increase for public safety programs and increases for public education and property tax reductions. Although the current state fiscal situation is good, funding for mitigation projects will not follow without a significant revision of policy towards hazard mitigation and/or development of a mitigation trust fund to assist local jurisdictions with project match.

Capabilities:

- The full-time SHMO and part-time HMGP coordinator are able to offer project funding through the HMGP and PDM programs, when available.
- Federal mitigation funds are available through a variety of State offices.
- Travel for the SHMO is normally funded through grant administration funds.

Limitations:

- The programs can only grow as large as the personnel able to coordinate them.
- For federal funds, the 25 percent match is often not available.
- A mitigation program budget does not exist except through federal grants for projects.

4.4 LOCAL CAPABILITY ASSESSMENT

Most mitigation projects in the State of Montana begin at the local level. Following a major disaster or a minor event, someone such as a county commissioner, the road crew, or a homeowner notices a problem that can be mitigated. Typically, the local officials will submit a request for mitigation grant funding as it is available. Ultimately, local mitigation projects are created, submitted, and implemented by those who live in the community. These local officials work closely with the SHMO and other State and federal officials in determining the best course of action.

Montana, being a large, mostly rural state, is managed primarily by county government with additional city and town governments in the more developed communities. Each county and tribe in Montana has a Disaster and Emergency Services (DES) Coordinator. These coordinators are typically positions that are not dedicated to emergency management full-time, and most are half or quarter time. Frequently, the coordinator will also have other duties within the county such as the sheriff or the fire chief. Only about 11 of 62 DES coordinators at the county or tribal level are full time. In most cases, these coordinators are also responsible for preparedness, response, recovery, and homeland security coordination. They are assisted by six state DES district representatives who act as liaisons between the State DES office and the county DES coordinators.

A variety of resources exist at the local level to assist in the hazard mitigation effort. Although, many programs and policies are proactive in some communities, others may not be. With each local government developing its own programs and policies, consistency across the state is lacking. **Table 4.4-1** demonstrates some of the more significant efforts at the local level. These efforts were identified through close partnership with the local jurisdictions.

Table 4.4-1 Local Policies and Programs Affecting Hazard Mitigation

Name	Description	Capabilities	Limitations
Building Codes	A minimum State building code exists for all communities; however, several have adopted their own stronger codes.	Implemented and enforced at the local level, structural building codes (some only residential) are in place in over 40 communities. See Figure 4.4-1 for these communities.	Many local jurisdictions have not adopted local building codes, nor do they have the staffing to do so. The State building code does not address structural codes for residences under 5 dwelling units.
Zoning	Statewide zoning does not exist, nor is it required. Many communities have created zoning districts.	Many communities have adopted zoning districts, including those that consider hazard areas. The creation of zoning districts is typically a grassroots effort.	Much of Montana is not zoned for hazard areas.
Growth Policies	State law requires local jurisdictions develop a document meeting specific criteria that addresses growth issues.	An adopted growth policy is required prior to the adoption of zoning ordinances and subdivision regulations. An assessment of the wildland-urban interface will be required beginning in 2009.	The growth policies are not regulatory and restrictions cannot be placed on development based on them.
Subdivision Regulations	Local jurisdictions can have regulations addressing requirements such as fire safety and open space for new subdivisions.	Local officials have the ability to regulate large development in hazard prone areas. Beginning in 2009, subdivisions can be denied where there is danger of injury to health, safety, or welfare by reason of natural hazard, including wildland fire.	Some communities may not have subdivision regulations, or they may not address natural hazards.
Planning Boards	Community planning boards can oversee growth and development and implement zoning ordinances and subdivision regulations.	Planning boards have the power to approve or deny development based on zoning ordinances and subdivision regulations.	Many planning boards are not be required to consider natural hazards while reviewing applications.

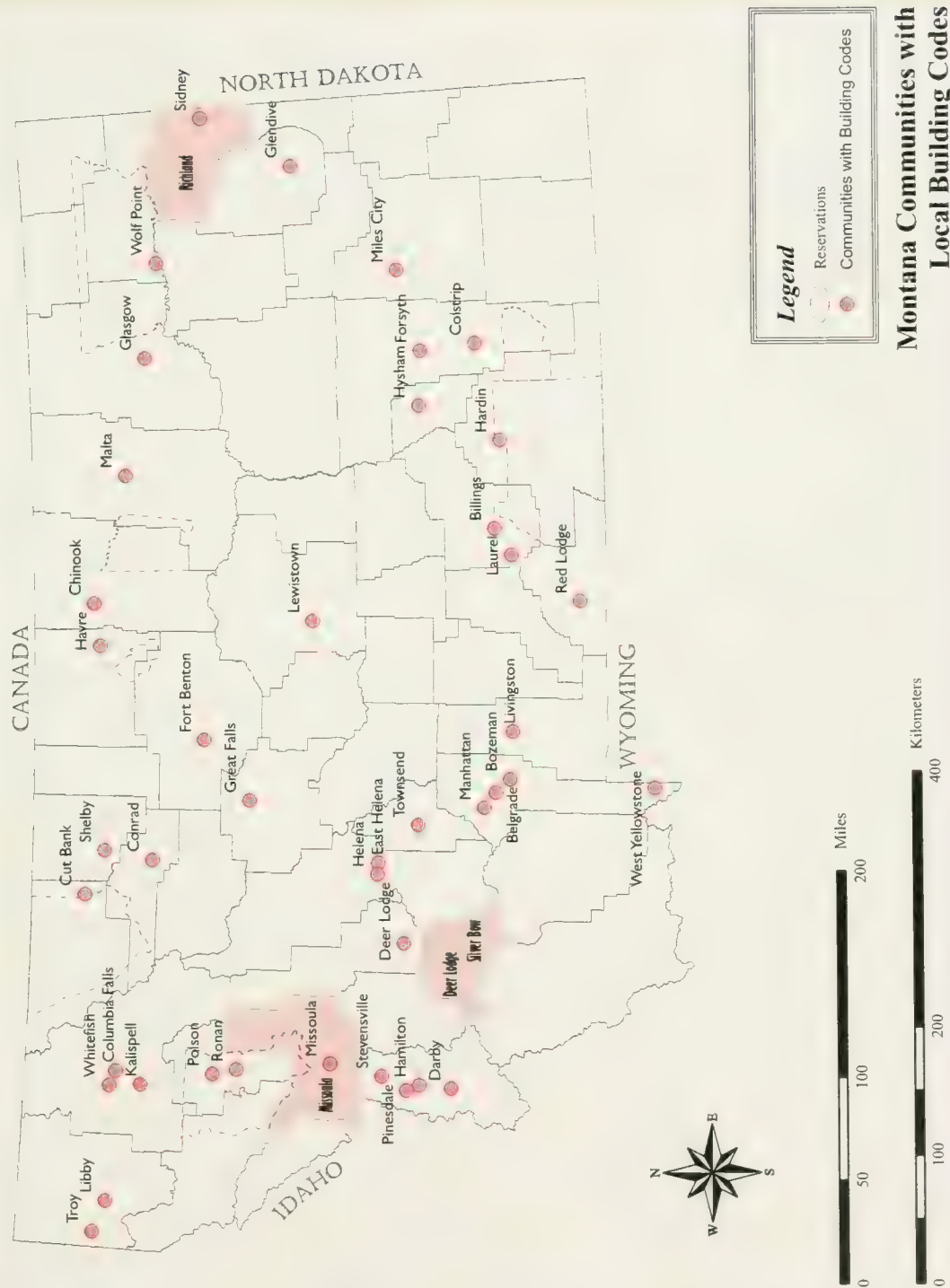
Table 4.4-1 Local Policies and Programs Affecting Hazard Mitigation

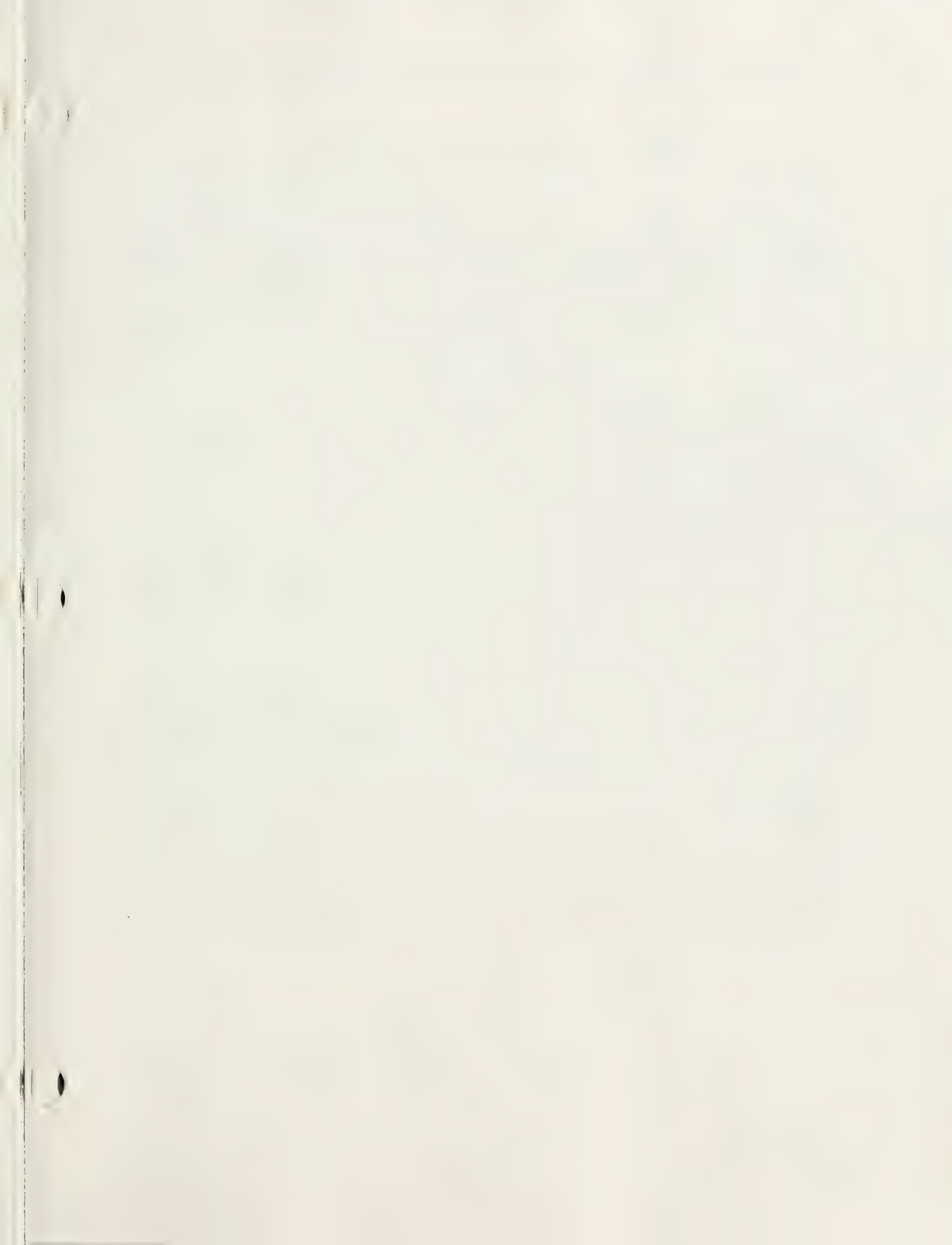
Name	Description	Capabilities	Limitations
Floodplain Management	Everyday enforcement of floodplain ordinances as part of the National Flood Insurance Program are conducted at the local level.	Local floodplain managers have the ability to manage their own area floodplains. A statewide freeboard of 2 feet strengthens floodplain management across the State. Local jurisdictions have the ability to impose greater restrictions in the floodplain if desired.	Local floodplain managers are extremely part-time and may not be able to keep up with changes in the program. Much of the floodplain mapping in the State needs to be updated.

Specifically for mitigation, the local officials through their DES coordinator or local hazard mitigation officer are responsible for:

- Working with the State Hazard Mitigation Team, as requested
- Developing local mitigation plans
- Applying for and implementing mitigation projects
- Reporting on mitigation progress

Figure 4.4-1 Montana Communities with Local Building Codes





5.0 PLAN AND PROJECT COORDINATION

5.1 LOCAL PLANNING AND TECHNICAL ASSISTANCE

The State Hazard Mitigation Officer (SHMO) has led the mitigation planning effort in Montana. Through planning grant funding from FEMA, communities have been motivated to develop, in many cases for the first time, plans for mitigating hazards. As of June 19, 2007, 43 Local PDM Plans had been approved by FEMA (41 county plans and two tribal plans) and 20 plans were in the advanced drafting stage (15 county plans and five tribal plans). **Figure 5.1-1** shows the planning status of counties in Montana.

5.1.1 Funding Process

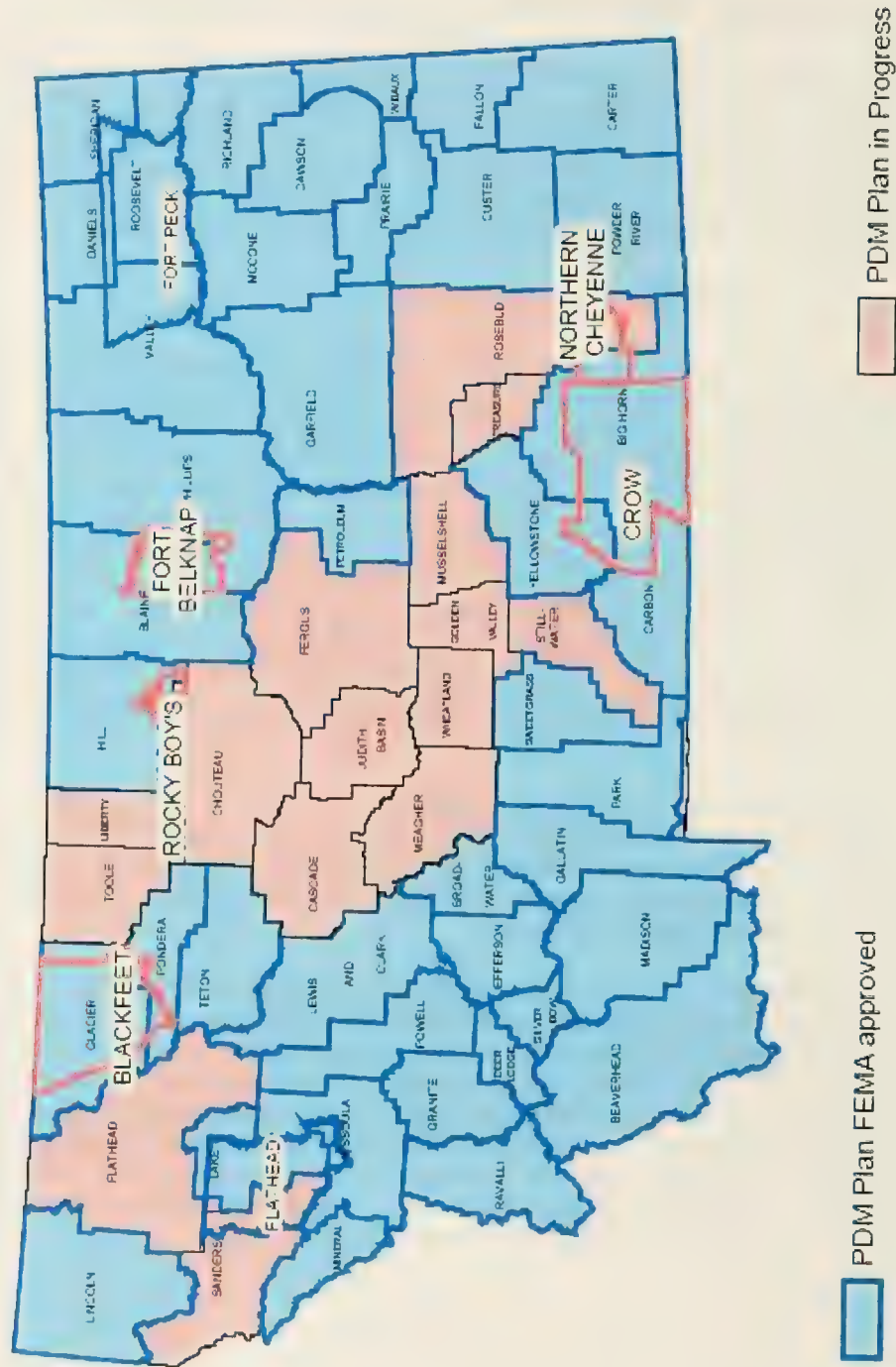
The process for this success began in 2002 when funding from FEMA for mitigation plans was designated for the State. Counties and tribes were informed of the available funding through letters, internet postings, and presentations at county meetings and conferences. The individual applicants were then required to submit notices of intent to the state. Following the notice of intent letters, applicants then had to fill out a thirteen page application stating, among other things, how much funding was needed and how it would be used to accomplish the end product of an approved mitigation plan. Based on the response received, the state was able to fund all of the requests. The SHMO then conducted a second recruitment and was successful in adding six more counties. The funding amounts for local plans varied from \$2,000 for a single county doing the plan themselves to \$30,000 for a multi-jurisdictional plan. On average, counties received \$7,500. Once all of the funding was allocated, newly interested communities were encouraged to find alternative funding sources.

During 2004-2005, many communities combined the PDM planning effort with the similar Community Wildfire Protection Plan initiative under the National Fire Plan through funding from the Department of Interior, Bureau of Land Management. Partnering the development of these two plans not only made sense but allowed for a landmark joint venture between agencies for planning in Montana.

The Pre-Disaster Mitigation Competitive program (PDM-C) has provided funding for completion of additional planning projects in Montana. In 2005, FEMA awarded the State of Montana \$208,500 in PDM-C funds to complete the remaining Local PDM Plans. Under this funding effort 11 county plans and five tribal plans were developed. One of the county plans was a combined PDM/CWPP joint effort coordinated by DES and BLM. A 25 percent cost-share match was provided by the local jurisdictions. Also in 2005, FEMA awarded the Montana University System \$255,017 in PDM-C funds to complete Disaster Resistant University PDM Plans at eight campuses. The local jurisdictions/grant recipients contributed the 25 percent cost-share required by FEMA.

Figure 5.1-1 Planning Status of Local Montana PDM Plans

Montana Pre-Disaster Mitigation (PDM) Program
19 June 2007



5.1.2 Technical Assistance

Communities have been assisted in developing mitigation plans in large part by the SHMO. The SHMO conducts an annual PDM-C/Benefit-Cost Analysis (BCA) workshop each September for potential applications for PDM-C grants and is often assisted in teaching these courses by FEMA officials. Frequently, the SHMO provides technical assistance on a case-by-case basis as requested over the phone, via e-mail, or in person. Significant technical assistance is also provided during the State review process of the plans. If needed, detailed comments and suggestions for improvement are made prior to State approval and submission to FEMA.

The SHMO is not the only person providing technical assistance with the planning. Specifically, with the development of risk assessments, the local National Weather Service offices, Montana Bureau of Mines and Geology, and Montana Department of Natural Resources have assisted communities with supportive data and expert review of the various hazards being analyzed. Typically, the local communities contact their area offices directly for technical assistance. Additional resources to the communities include their DES District Representatives with whom they meet regularly.

5.2 LOCAL PLAN INTEGRATION

Completed local mitigation plans are submitted to the SHMO at the Montana Disaster and Emergency Services Division for state approval and submission to FEMA – Region VIII. The plan is then reviewed in detail by the SHMO for compliance with the DMA 2000 and additional State requirements. The review process at the State level typically takes up to 30 days. During this timeframe, the SHMO will approve the plan, provide comments in the plan's crosswalk, and either submit the plan for to FEMA – Region VIII for approval or return the plan to the local jurisdiction for improvements with statements specifically outlining the criteria not met. Once at FEMA – Region VIII, the review process may take up to six months for final approval to be given or returned for improvements.

Once approved by the State, the local plan can be incorporated into the State Hazard Assessment and Mitigation Strategy. This integration is done through a variety of means. First and foremost, the local plan automatically becomes an annex to the State Plan and the Montana Disaster and Emergency Plan. Second, specific plan contents are integrated into the State Hazard Assessment and Mitigation Strategy. This formal incorporation will occur on an annual basis during the yearly plan review and update.

The Hazard Assessment portion of the plan contains a section for local data. Hazard Risk maps are included in the State Plan that represent the local jurisdictions vulnerability to each hazard. These maps are linked electronically to the Local PDM Plans where additional information is available. Potential loss data from the local risk assessments are consolidated in a table for each hazard. For this section to be more useful, a consistent methodology for local risk assessments will need to be developed. Although useful at the local level, the various methodologies being used across the state do not allow for direct comparisons.

In the Mitigation Strategy, local projects that can be applied to statewide concepts will be integrated into the statewide strategy of potential actions. More importantly, the local mitigation strategies will assist the SHMO and SHMT when reviewing project applications, providing technical assistance, and researching funding options.

The integrated State-approved Local PDM Plans are presented in **Table 5.2-1**.

Table 5.2-1 Integrated State-Approved Local Mitigation Plans

County/Tribe	Plan Date	Date Approved	Date Integrated
Beaverhead County	May 2004	October 15, 2004	
Big Horn County	April 2006	August 8, 2006	July 2007
Blaine County	August 2005	July 19, 2006	July 2007
Broadwater County	January 2004	September 19, 2006	July 2004
Carbon County	August 2005	March 23, 2006	July 2007
Carter County	December 2004	March 23, 2006	July 2007
Confederated Salish-Kootenai Tribe	September 2005	March 23, 2006	July 2007
Custer County	December 2004	June 28, 2005	July 2007
Daniels County	September 2003	March 12, 2004	July 2004
Dawson County	December 2005	December 19, 2006	July 2007
Deer Lodge County	June 2005	November 18, 2005	July 2007
Fallon County	November 2005	April 5, 2006	July 2007
Fort Peck Reservation	September 2003	March 8, 2004	July 2004
Gallatin County	February 2006	December 19, 2006	July 2007
Garfield County	January 2007	March 3, 2007	July 2007
Glacier County	December 2004	September 26, 2005	July 2007
Granite County	November 2005	July 12, 2006	July 2007
Hill County	August 2005	March 28, 2006	July 2007
Jefferson County	January 2005	May 9, 2005	July 2007
Lake County	December 2005	March 28, 2006	July 2007
Lewis and Clark County	April 2005	June 13, 2005	July 2007
Lincoln County	February 2005	June 3, 2005	July 2007
Madison County	June 2004	October 1, 2004	July 2007
McCone County	December 2005	December 19, 2006	July 2007
Mineral County	February 2005	June 8, 2005	July 2007
Missoula County	October 2004	December 27, 2004	July 2007
Park County	August 2005	February 6, 2006	July 2007
Petroleum County	August 2003	November 4, 2003	July 2004
Phillips County	August 2005	August 2, 2006	July 2007
Pondera County	December 2004	August 18, 2005	July 2007
Powder River County	December 2006	May 31, 2007	July 2007
Powell County	July 2004	December 23, 2004	July 2007
Prairie County	December 2005	August 29, 2006	July 2007
Ravalli County	December 2004	May 9, 2005	July 2007
Richland County	December 2005	December 19, 2006	July 2007
Roosevelt County	September 2004	December 20, 2004	July 2004
Sheridan County	September 2003	December 2, 2003	July 2004
Silver Bow County	February 2004	September 9, 2004	July 2007
Sweet Grass County	January 2005	June 3, 2005	July 2007
Teton County	June 2005	April 20, 2006	July 2007
Valley County	September 2003	December 29, 2003	July 2004
Wibaux County	December 2005	August 8, 2006	July 2007
Yellowstone County	May 2004	January 14, 2005	July 2007

5.3 PROJECT PRIORITIZATION

In Montana, most mitigation projects from construction projects to community outreach are done at the local level. County and city government typically make the decisions governing projects from project design to implementation for their jurisdictions. With a state the size of Montana, local officials know the problems and issues within their community's best. The variations in climate, terrain, and population make each jurisdiction unique. What may work in one community, may not work in another. Rather than dictating the projects that should be done at the local level, the State typically acts as a guide and resource. Continuing in this spirit, only projects that are statewide in nature or serve as a good example for projects at the local level are listed in this plan as potential actions. As funding becomes available, however, the State will prioritize the individual projects. Communities applying for funding will need to submit a project application. Two applications exist – one for planning and another for non-planning projects. The type of project being submitted dictates which application should be completed. Based on the information provided in the application, the projects are scored and prioritized.

5.3.1 Mitigation Review Committee

A project review committee, known as the Mitigation Review Committee, is a team of project reviewers representing various levels of government and organizations and geographical parts of the state. This committee is considered a subset of the State Hazard Mitigation Team. Members are knowledgeable in hazard mitigation practices, project engineering, environmental review procedures, cost-benefit methods, vulnerabilities, and/or disaster services. Examples of potential members include:

- State Hazard Mitigation Officer
- State Floodplain Manager
- Local (District, County, and/or Tribal) DES Representatives
- Montana Department of Transportation Representative
- Civil Engineer
- State Fire Mitigation Representative
- Meteorologist
- Representatives from Recently Damaged Areas
- GIS Representative
- MACo and/or League of Cities and Towns Representatives
- Insurance Representative
- University and/or Hazard Representatives
- Private Advisory Group Representative
- Media Representative
- Congressional Representative
- Utility/Transportation Representative
- Economic Development Representative
- Grant Program and/or Fiscal Representative

As needed, the Mitigation Review Committee is responsible for reviewing and ranking project applications. The committee does have the authority to resolve discrepancies and make special considerations for a project, either positive or negative, if needed. The prioritization scheme that follows, however, takes into consideration the most important factors.

5.3.2 Prioritization Scheme

A numerical scoring system is used to prioritize projects. This prioritization serves as a guide for local government and State agencies when developing mitigation activities. Again, due to the State's geographical diversity, few projects are beneficial to the entire State. Therefore, in an effort to promote mitigation across the State and not negatively impact efforts for statewide participation, this project prioritization scheme has been designed to rank projects on a case by case basis. In many cases, a very good project in a lower priority category could outrank a mediocre project in a higher priority. The State does not want to restrict funding to only those projects that meet the high priorities because what may be a high priority for a specific community may not be a high priority at the State level. Irregardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying reasons and criteria is a necessity for a functional mitigation program at the State and District level. To implement this case-by-case concept, a more detailed process for evaluating and prioritizing projects has been developed. Any type of project, whether statewide or site-specific, will be prioritized in this more formal manner.

To prioritize projects, a general scoring system has been developed. This prioritization scheme has been developed based on input received from Stakeholders regarding what factors should be considered when prioritizing and selecting projects. These factors range from cost-benefit analysis, to details on the hazard being mitigated, to environmental impacts. Since planning projects are somewhat different than non-planning projects when it comes to reviewing them, different criteria will be considered, depending on the type of project.

Factors for the non-planning projects include:

- Cost
- Population Benefit
- Property Benefit
- Economic Benefit
- Project Feasibility (environmentally, politically, socially)
- Hazard Magnitude/Frequency
- Potential for repetitive loss reduction
- Potential to mitigate hazards to future development
- Potential project effectiveness and sustainability

Factors for the planning projects include:

- Cost
- Vulnerability of the community or communities
- Potential for repetitive loss reduction
- Potential to mitigate hazards to future development

Since some factors are considered more critical than others, two ranking scales have been developed. A scale of 1-10, 10 being the best, has been used for cost, population benefit, property benefit, economic benefit, and vulnerability of the community. Project feasibility, hazard magnitude/frequency, potential for repetitive loss reduction, potential to mitigate hazards to future development, and potential project effectiveness and sustainability are all rated on a 1-5 scale, with 5 being the best. The highest possible score for a non-planning project is 65 and for a planning project is 30. If needed, to allow for comparisons between

planning and non-planning grants, the planning score should be multiplied by 2. The guidelines for each category are as follows:

Cost

The Cost category includes the actual costs to design and complete the project and the costs associated with staff time to implement the project. For a 10 ranking, the project should cost less than \$100. For a 5 ranking, the project would cost roughly \$100,000, and for a 1 ranking, the project should cost over \$1,000,000.

Population Benefit

Population Benefit relates to the ability of the project to prevent the loss of life or injuries. A ranking of 10 has the potential to impact over 3,000 people. A ranking of 5 has the potential to impact 100 people, and a ranking of 1 will not impact the population. In some cases, a project may not directly provide population benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly effects the population, but should not be considered to have no population benefit.

Property Benefit

Property Benefit relates to the prevention of physical losses to structures, infrastructure, and personal property. These losses can be attributed to potential dollar losses. Similar to cost, a ranking of 10 has the potential to save over \$1,000,000 in losses, a ranking of 5 has the potential to save roughly \$100,000 in losses, and a ranking of 1 only has the potential to save less than \$100 in losses. In some cases, a project may not directly provide property benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly effects property, but should not be considered to have no property benefit.

Economic Benefit

Economic Benefit is related to the savings from mitigation to the economy. This benefit includes reduction of losses in revenues, jobs, and facility shut downs. Since this benefit can be difficult to evaluate, a ranking of 10 would prevent a total economic collapse, a ranking of 5 could prevent losses to about half the economy, and a ranking of 1 would not prevent any economic losses. In some cases, a project may not directly provide economic benefits, but may lead to actions that do, such as in the case of a study. Those projects will not receive as high of a rating as one that directly affects the economy, but should not be considered to have no economic benefit.

Vulnerability of the Community

For planning projects, the vulnerability of the community is considered. A community that has a high vulnerability with respect to other jurisdictions to the hazard or hazards being studied or planned for will receive a higher score. To promote planning participation by the smaller or less vulnerable communities in the state, the score will be based on the other communities being considered for planning grants. A community that is the most vulnerable will receive a score of 10, and one that is the least, a score of 1.

Project Feasibility (Environmentally, Politically & Socially)

Project Feasibility relates to the likelihood that such a project could be completed. Projects with low feasibility would include projects with significant environmental concerns or public opposition. A project with high feasibility has public and political support without environmental concerns. Those projects with very high feasibility would receive a ranking of 5 and those with very low would receive a ranking of 1.

Hazard Magnitude/Frequency

The Hazard Magnitude/Frequency rating is a combination of the recurrence period and magnitude of a hazard. The severity of the hazard being mitigated and the frequency of that event must both be considered. For example, a project mitigating a 10-year event that causes significant damage would receive a higher rating than one that mitigates a 500-year event that causes minimal damage. For a ranking of 5, the project mitigates a high frequency, high magnitude event. A 1 ranking is for a low frequency, low magnitude event. Note that only the damages being mitigated should be considered here, not the entire losses from that event.

Potential for Repetitive Loss Reduction

Those projects that mitigate repetitive losses receive priority consideration here. Common sense dictates that losses that occur frequently will continue to do so until the hazard is mitigated. Projects that will reduce losses that have occurred more than three times receive a rating of 5. Those that do not address repetitive losses receive a rating of 1.

Potential to Mitigate Hazards to Future Development

Proposed actions that can have a direct impact on the vulnerability of future development are given additional consideration. Many parts of Montana are undergoing rapid growth and development. If hazards can be mitigated on the onset of the development, our state will be less vulnerable in the future. Projects that will have a significant effect on all future development receive a rating of 5. Those that do not affect development should receive a rating of 1.

Potential Project Effectiveness and Sustainability

Two important aspects of all projects are effectiveness and sustainability. For a project to be worthwhile, it needs to be effective and actually mitigate the hazard. A project that is questionable in its effectiveness will score lower in this category. Sustainability is the ability for the project to be maintained. Can the project sustain itself after grant funding is spent? Is maintenance required? If so, are or will the resources be in place to maintain the project. An action that is highly effective and sustainable will receive a ranking of 5. A project with effectiveness that is highly questionable and not easily sustained should receive a ranking of 1.

Final Ranking

Upon ranking a project in each of these categories, a total score can be derived by adding together each of the scores. The project can then be ranking high, medium, or low based on the non-planning project thresholds in **Table 5.3-1**.

Table 5.3-1 Project Ranking

Non-Planning Project		Planning Projects	
Priority	Score	Priority	Score
High	40-65	High	20-30
Medium	25-39	Medium	10-19
Low	9-25	Low	4-9

Examples

To demonstrate the use of this prioritization scheme, a few examples will be presented.

Example 1: This project proposes hiring a contractor to conduct Level 1 HAZUS-MH runs for flooding and earthquakes for each county in Montana. A brief report will be distributed to each county. The estimated cost is \$56,000.

Category	Score
Cost	7
Population Benefit	5
Property Benefit	5
Economic Benefit	3
Project Feasibility	4
Hazard Magnitude/Frequency	4
Potential for repetitive loss reduction	4
Potential to mitigate hazards to future development	4
Potential project effectiveness and sustainability	4
TOTAL	40

Therefore, this project would be considered a high priority.

Example 2: This project proposes upgrading culverts in a community to reduce flood losses. The estimated cost is \$35,000.

Category	Score
Cost	7
Population Benefit	4
Property Benefit	5
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	5
Potential for repetitive loss reduction	3
Potential to mitigate hazards to future development	2
Potential project effectiveness and sustainability	3
TOTAL	38

Therefore, this project would be considered a medium priority.

Example 3: This project proposes hiring an employee or contractor to create a Statewide All-Hazard Emergency Alert System plan. The estimated cost is \$100,000.

Category	Score
Cost	5
Population Benefit	8
Property Benefit	5
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	5
Potential for repetitive loss reduction	1
Potential to mitigate hazards to future development	3
Potential project effectiveness and sustainability	3
TOTAL	37

Therefore, this project would be considered a medium priority.

Example 4: This project proposes using existing resources to educate relevant agencies and lawmakers and propose legislation that will strengthen building codes for earthquake and wind. The estimated indirect personnel cost is \$30,000.

Category	Score
Cost	7
Population Benefit	7
Property Benefit	8
Economic Benefit	5
Project Feasibility	3
Hazard Magnitude/Frequency	4
Potential for repetitive loss reduction	1
Potential to mitigate hazards to future development	5
Potential project effectiveness and sustainability	3
TOTAL	43

Therefore, this project would be considered a high priority.

Example 5: This project proposes reducing fuels for in a subdivision of about 10 homes in the wildland/urban interface. To assess and complete the work, the estimated cost is \$20,000.

Category	Score
Cost	8
Population Benefit	3
Property Benefit	9
Economic Benefit	1
Project Feasibility	3
Hazard Magnitude/Frequency	3
Potential for repetitive loss reduction	2
Potential to mitigate hazards to future development	1
Potential project effectiveness and sustainability	4
TOTAL	34

Therefore, this project would be considered a medium priority.

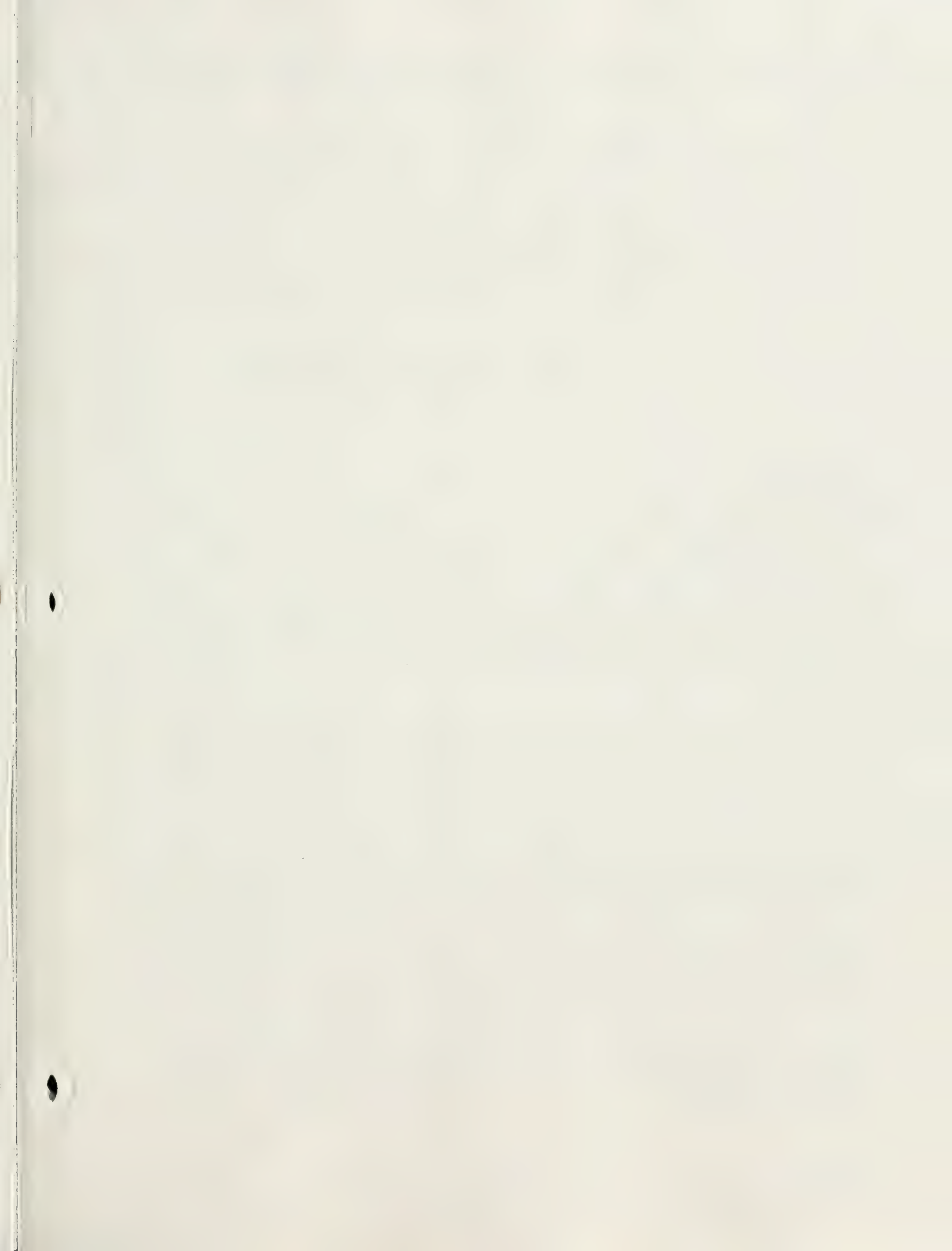
Example 6: This project proposes completing a PDM plan for a county not participating in the program. The county is the most vulnerable county not in the program based on population and total residential structure value. The community has three NFIP repetitive loss structures. The estimated cost of the plan development is \$7,500.

Category	Score
Cost	8
Vulnerability of Community	10
Potential for repetitive loss reduction	3
Potential to mitigate hazards to future development	2
TOTAL	23

The non-planning score would be (23×2) 46, and therefore, a high priority.

Final Prioritization Results

Once scored individually, a total score from each of the Mitigation Review Team members can be determined for each project. The highest scoring project would then be considered the greatest priority. The Mitigation Review Team, however, does have the opportunity to consider the rankings and modify them. If through discussion, the team decides that a project's ranking is inaccurate because of special circumstances, such as a high amount of match, timing with a related project, or a better fit with the goals of the funding source, then the team may change the priority of the project. Ultimately, how well a project meets the specific, established factors considered will determine how high of a priority the project is. If needed, the scoring system can be modified to suit the projects being evaluated. Refinement of the scoring system will occur as the prioritization scheme is used.



6.0 PLAN MAINTENANCE PROCEDURES

6.1 PLAN EVALUATION AND MAINTENANCE

The State Hazard Mitigation Officer (SHMO) as part of the Montana Disaster and Emergency Services (DES) Division of the Department of Military Affairs and the State Hazard Mitigation Team (SHMT) are responsible for the evaluation and maintenance of this Multi-Hazard Mitigation Plan and Statewide Hazard Assessment. Comments and updated information on the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment can be submitted at any time to the following:

**State Hazard Mitigation Officer
Montana Disaster and Emergency Services
P.O. Box 4789
Fort Harrison, Montana 59636-4789**

6.1.1 Process Used Over the Past Three Years

A PDM-C planning grant was submitted for FEMA funding two years prior to the State Plan update (a 2005 grant funded completion of the 2007 plan update). The State followed appropriate contracting guidelines to hire a Contractor to complete the State Plan Update. This process was initiated at least 16 months prior to the expiration date of the current plan. The term of the contract to update the State Plan was essentially one year.

The approach outlined in 2004 to evaluate and maintain the State Plan included an "as-needed" meeting of the State Hazard Mitigation Officer (SHMO) and/or members of the State Hazard Mitigation Team (SHMT) to coordinate with other agencies to document their mitigation progress. An annual Stakeholders meeting was to be held to solicit input from local, state, federal, tribal, and private organizations or individuals on the existing plan and proposed changes.

Between 2004 and 2007, no meetings were held between the SHMO, SHMT, or Stakeholders to evaluate the State Plan or coordinate on implementing the state mitigation strategy. It is therefore, apparent that a change in method and schedule is needed to ensure plan evaluation takes place during the next three year period so the State of Montana is able to fulfill the commitments outlined in the State Plan.

6.1.2 Revised Process for Next Plan Update

A PDM-C planning grant would be submitted to FEMA for the next State Plan update in the same timeframe previously described. A Contractor would be retained to perform the update under a one-year contract.

Lessons learned from the past plan maintenance process indicate that a formal meeting time and place needs to be established for the annual review of the Montana State Plan to ensure it takes place. Holding the State Plan maintenance meeting in conjunction with an activity that has the majority of the project Stakeholders already in one place will provide a cost- and time-savings opportunity to get meaningful input on the State Plan.

The revised process to maintain the State Plan consists of an annual stakeholders meeting to be held either during the "Governor's Emergency Preparedness Summit" or at the "DES Spring Training Symposium". The "Governor's Emergency Preparedness Summit" occurs

every other year (even years), during the last full week in April. Emergency managers attend this meeting from all sectors including federal, state, and county/tribal emergency managers, public officials, health workers, private citizens and contractors. The State Plan maintenance meeting would take place during a break-out session during the summit. In odd years (when the Montana legislature is in session), the annual Stakeholders meeting would take place in conjunction with the "DES Spring Training Symposium". The symposium is primarily made up of all the state and county/tribal DES staff personnel. Previous and new Stakeholders would be notified of the meeting with at least one month's notice. Sign-in sheets and meeting minutes would be included in subsequent State Plan updates.

The State Plan maintenance meetings would include an evaluation of the statewide risk assessment and mitigation strategy. There would be a facilitated exchange on how to improve coordination among agencies and how to more effectively integrate mitigation into other state programs. Further details on the Stakeholder meeting is presented in *Section 6.2.2* below.

A schedule of updates, as shown in **Table 6.1-1**, demonstrates the aspects of the plan that will be reviewed following a disaster, annually, and every three years. Following the three year review, a copy of the updated plan would be submitted to the FEMA – Region VIII office for approval, as required by the Disaster Mitigation Act of 2000. The next State Plan Update is scheduled for 2010.

Table 6.1-1 Schedule of Update Activities

Plan Aspect	Post-Disaster	Annually	Every 3 Years
Stakeholders meeting on the past year's activities, problems, and input process		X	X
Planning process			X
Organization responsibilities			X
Integration with other state plans	X	X	X
Integration of local plans		X	X
Economic data			X
Population data			X
Hazard profiles/Addition of new hazards	X		X
Hazard assessment methodology			X
History and disaster declarations	X	X	X
New study data		X	X
GIS data		X	X
State structure data			X
Data limitations			X
Qualitative hazard assessment			X
Goals, objectives, and potential actions	X	X	X
Funding sources		X	X
State capabilities		X	X
Local capabilities		X	X
Plan and project coordination		X	X
Project prioritization	X	X	X
Plan evaluation process		X	X
Project monitoring		X	X

6.2 PROJECT MONITORING/EVALUATION

In addition to updating the information in the plan document, projects and their progress towards achieving goals and objectives individual projects are monitored by the state agency implementing the project or the grant. Generally, HMGP and PDM projects are monitored by Disaster and Emergency Services, FMA and NFIP projects are monitored by the DNRC, Water Resources Division, and National Fire Plan projects are monitored by DNRC, Forestry Division. Each agency tracks projects through their own databases and quarterly reports to federal agencies.

6.2.1 Process Used Over the Past Three Years

The approach outlined in the 2004 State Plan to monitor and evaluate mitigation projects required that state agencies submit annual progress reports to the State Hazard Mitigation Team (SHMT). The State Hazard Mitigation Officer (SHMO) was to initiate requests for the reports from agency contacts at least 60 days before the annual Stakeholders meeting. Within 30 days, the reports were due to the SHMT. The information contained in these reports was to include projects initiated, the status of continuing projects, and project closeouts. The SHMT was to be responsible for consolidating the reports and evaluating the progress in meeting goals and objectives.

During the three years since the 2004 State Plan was approved, no progress reports were received from state agencies documenting their progress towards implementing the State's mitigation strategy. On PDM-C projects, the SHMO received progress reports from FEMA grantees.

6.2.2 Revised Process for Next Plan Update

The process used to monitor mitigation projects for the next plan update cycle has been revised as a result of "lessons learned". It is apparent that interest in hazard mitigation wanes during the three year interim between State Plan revisions. Therefore, the revised monitoring process would involve enhancing state agency involvement and increasing their interface with the local jurisdictions by implementing an on-going dialog on hazard mitigation throughout the year. In this manner, a system will be established for reviewing progress on achieving goals and implementing projects in the statewide mitigation strategy.

Under the direction of the SHMO, the State Plan Advisory Committee would be enhanced to include at least one representative from each state agency involved in hazard mitigation. Agencies such as the DNRC would have representatives from both the Water Resources and Forestry Divisions. The six DES District Representatives would also be included on the Advisory Committee to bring in the local perspective. The enhanced Advisory Committee would meet and/or coordinate via conference call on a semi-annual basis (two times per year) to work on program integration and implementing the statewide mitigation strategy. Working groups would be established to further develop or promote specific aspects of the mitigation strategy. The SHMO would arrange the meetings/conference calls with at least 30 days advance notice and provide Advisory Committee members and/or working groups with an outline of topics needing attention.

At the annual Stakeholder meeting (described in *Section 6.1.2*, above), each state agency or working group will be invited to make a presentation on the status of mitigation activities including new projects and project closeouts. The presentation would also include a discussion on whether mitigation actions were implemented as planned and/or what

changes were made. Working group reports and/or meeting minutes would be reviewed by the SHMO to monitor progress made toward implementing the statewide mitigation strategy and included as documentation in the State Plan Update. Management and maintenance of this monitoring system would be the responsibility of the SHMO.

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7.14 Method Used To Calculate Potential Loss Figures

1. In **Broadwater County**, the median value of a housing unit is \$85,500. Structure losses were determined by overlaying the hazard area on the structure data to determine the number of structures that lie within that hazard area. The number of structures in the hazard area was multiplied by \$85,500. In most cases, the dollar values are multiplied by a damage factor since many events will not result in a complete loss of all structures. Population impacts were qualitatively assessed based on the percentage of population estimated to have residences in the hazard area and the general warning time that could be expected (Big Sky Hazard Management).

In **Park County**, the median value of a housing unit is \$97,900. GIS data was used if available (structures have been mapped in 50% of the County) along with the Montana Dept. of Revenue's Computer Assisted Mass Appraisal System.

In **Deer Lodge County**, the median value of a housing unit is \$70,700. GIS data was used if available along with Montana Dept. of Revenue's Computer Assisted Mass Appraisal System.

In **Granite County**, the median value of a housing unit is \$78,300. GIS data was used with hazard areas in risk assessments.

In **Silver Bow County**, the median value of a housing unit is \$74,900. GIS data was used with hazard areas in risk assessments.

In **Garfield County, Rosebud County and Treasure County**, structure replacement value and contents values data from the county, town insurance records or taxable values were used. Population impacts were qualitatively assessed based on the number of structures estimated to be in the hazard area. An average of 1.9 people per structure reside in Garfield County, an average of 2.6 people per structure reside in Rosebud County, and an average of 2.8 people per structure reside in Treasure County.

In **Powder River County**, the median value of a housing unit is \$59,800. Where possible, GIS data allowed comparison of the resources to hazard areas. When not available, estimation and plausible scenarios to quantify potential losses were used.

Population estimates were based on the average number of people per structure. A population of 1,858 divided by 857 structures equals 2.2 people per structure.

2. In **Judith Basin, Golden Valley, Musselshell, and Wheatland counties**, building and societal exposures were calculated by overlaying the hazard area on census block data. Building exposure values were based on building stock data available from the FEMA HAZUS software. To allow analysis of building stock values at the census block level, the building stock structure values were assigned to census blocks in the same proportion that a given block represents the percentage of population in the tract. To calculate societal exposure, six variables from the 2000 Census were used. They include population density, age greater than 65, age less than 18, income less than poverty level, no high school and population with disabilities. For each census block, the six vulnerabilities were added and divided by six. Building and societal risk was then calculated by multiplying Exposure x Frequency (times per year) x Hazard Loss Magnitude (% of assets or population affected by event). This method was also used for **Blaine, Daniels, Hill, Lake, Phillips, Roosevelt, Sanders, Sheridan, and Valley counties** and the **Blackfeet, Flathead, Fort Belknap, Fort Peck, Rocky Boys tribal reservation** plans. [Tetra Tech and Rick Gould].
3. In **Big Horn, McCone, Prairie, Richland and Wibaux counties and the Crow and Northern Cheyenne Reservation**, potential loss estimates were assessed as follows:
 - a. Identify the future potential for the hazard to result in damages. This was done by looking at past occurrences and considering factors that could potentially increase risk. Analysis focused on existing land uses.
 - b. Inventory assets and identify what might be affected by the different hazard events. Critical facilities and vulnerable populations were identified at the first steering committee meeting.
 - c. Estimate losses. Losses were estimated using information from past events (Cossitt Consulting).
4. In **Fergus County**, human and economic impact were calculated. Human impact was rated on a scale of 1 to 10 with 1 being very little chance of injuries or deaths related to the event and 10 being a very good chance of injuries or deaths. Economic impact was rated in a similar way; 1 designated very little economic impact and 10 designated very serious economic impact (Lacey M. Bray).
5. In **Beaverhead County**, hazard vulnerability assessments were calculated with the following formula:

Frequency x Magnitude x Exposed = Potential Risk Factor/Involvement Per Year

Frequency is how often an event occurs in a year (based on historical records). An impact area was then designated for each hazard and a magnitude was assigned. The magnitude represents the percentage of the population and structures to be affected by the hazard event. Exposed refers to people or dollar value of structures. Values for structures were based on the County Assessors reports (Mel Rice, PDM Planner).

6. In **Lewis and Clark County**, GIS data was used to determine potential \$ losses for flood, earthquake and wildfire. Potential loss equals the sum of all house values within a designated hazard area. For flood, the hazard area is the 100-year flood. For wildfire, homes in the "High" to "Severe" wildfire areas were totaled. For earthquake, the city of Helena was examined.
7. **Madison County** used the guidelines in the FEMA document *Understanding Your Risk: Identifying Hazards and Estimating Losses* to develop a cost estimate for earthquake damage. For Hazmat, a traffic accident in the town of Ennis (intersection of US hwy 287 and MT hwy 287) was postulated. The number of people associated with nearby businesses and schools was totaled for societal risk.
8. **Flathead County** presented risk assessments based on history and estimated vulnerabilities to the community. Some hazards have estimates of dollar losses and population impacted whereas others are more qualitatively assessed based on available information from the risk assessment process.

Dawson County also presented risk assessments based on history (Cossitt and Beck Consulting). **Fallon County** and **Carbon County** also used this method (Beck Consulting).

Stillwater County presented risk assessments based on a hypothetical hazard event. Reasonably consequences were identified for each of the events and experts on costs for the consequences were contacted for dollar estimates based on previous local experiences.

9. **Lincoln County** presented scores of 1 (Low), 2 (Medium) and 3 (High) for societal impact depending on the potential for loss of life or human health impacts. Property loss potential was rated as 1-4:

- 4 - >\$50 million
- 3 - \$10-\$50 million
- 2 - \$1-\$10 million
- 1 - <\$1 million

These values were calculated based on number and type of structures potentially impacted by a hazard event multiplied by the Severity rating multiplied by an average value for structures or infrastructure. The Lincoln County Assessor provided an estimate of the average residential unit value of \$100,000. Commercial blocks were valued at \$2 million (Hydrometrics, Inc and Arrowhead Engineering).

10. **Mineral County, Missoula County** and **Ravalli County** calculated societal and building loss estimates by various methods. The HAZUS Earthquake model, Montana CAMA data, FEMA Flood Loss Estimation and historic losses were used to calculate estimates (Land & Water Consulting, Inc.)

Powell County used a similar method for estimating losses; they looked at historic data and the Montana CAMA data. Building and Societal impacts were rated as Low, Medium and High.

11. **Liberty County** and **Toole County** estimated hazard losses using information from past events. Losses were estimated as high, medium or low:

Low = <\$500,000

Medium = \$500,001 to \$2.5 million

High = >\$2.5 million

Societal risk was also rated as low, medium or high:

Low= Sporadic impacts on individual properties

Medium= Significant impact locally

High= Half or more of the county's population is significantly impacted (Beck Consulting).

12. **Carter County** LEPC prepared their PDM. They estimated potential loss for the hazards as low, moderate or high. **Gallatin County** also estimated potential loss for hazards as low, moderate or high.

13. **Custer County** only calculated potential loss for their major hazards which includes drought and flood. County participants also rated the consequences of an average hazard event for drought, flood, wildfire, winter storm and wind storm/hail as low, moderate or high:

Low= No serious injury or loss of human life, damage is less than \$500,000.

Moderate= Loss of human life and/or damage between \$500,000 and \$3 million.

High= Multiple lives lost and/or damage greater than \$3 million.

Petroleum County presented an inventory of assets but did not present potential dollar losses per hazard. Inventory includes the following:

County Courthouse and contents - \$1,024,000

County Maintenance Shop and contents - \$100,000

Two ambulances - \$46,250

Sheriff's vehicles - \$71,500

Fire Dept. vehicles - \$300,000

Road Dept. vehicles - \$99,717

Weed Dept. - \$7,225

Large road equipment - \$250,283

In 1997, the average farm in Petroleum County was 6,152 acres, valued at \$1,110,237 with an average cost per acres of \$188.

Jefferson County and **Sweet Grass County** also presented tables of an inventory of assets but did not present potential dollar losses per hazard.

Glacier County and **Pondera County** presented a figure with estimated building stock values by census block but did not present potential dollar losses per hazard.

Teton County presented a list of critical facilities but did not provide dollar values or potential loss estimates (Northwest Mangement, Inc.)

Yellowstone County used the FEMA publication *Understanding Your Risk: Identifying Hazards and Estimating Losses* to estimate loss; however, they did not look at the hazards and estimate the effect of a hazardous event.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

**APPENDIX A
STATE STAKEHOLDER DOCUMENTATION**

***Advisory Committee
Stakeholders Group
Hazard Technical Group
Invited Stakeholders
Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Project Scoring Sheets***

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

**Advisory Committee
Hazard Technical Groups
Stakeholders Groups
Invited Participants**

State PDM Plan Advisory Group Members	
Jesse Aber	Montana Department of Natural Resources and Conservation
Lou Antonick	Montana Department of Administration
Kent Atwood	Montana Disaster and Emergency Services
Art Bicsak	Montana Department of Health and Human Services
Jens Bolstad	Montana Disaster and Emergency Services
Daphne Digrindakis	Tetra Tech
Margie Ewing	US Forest Service
Peter Felsch	National Weather Service – Missoula
Tanja Fransen	National Weather Service – Glasgow
Fred Gifford	Tetra Tech
John Horn	Montana Department of Military Affairs
Steve Knecht	Montana Disaster and Emergency Services
Sheri Lanz	Montana Disaster and Emergency Services
Monique Lay	Montana Disaster and Emergency Services
Michele LeMieux	Montana Department of Natural Resources and Conservation
Dan McGowan	Montana Disaster and Emergency Services
Kimberly Merenz	Montana Department of Agriculture
Dan Reilly	National Weather Service – Great Falls
Art Robinson	Montana Department of Natural Resources and Conservation
Paula Rosenthal	Montana Department of Natural Resources and Conservation
Mike Stickney	Montana Bureau of Mines and Geology
Jim Whaley	Montana Department of Administration

Stakeholders Group Members

State and Federal Agencies, Utilities, Non-Profits

Lars A. Allestad	Hill County Electric
Lou Antonick	Montana Department of Administration
Kurt Baltrusch	Montana Utility One Call
Dave Biggar	Flathead Electric Coop
Art Bicsak	Montana Department of Public Health and Human Services
Jens Bolstad	Montana Department of Emergency Services
Millie Bowman	Montana Department of Natural Resources and Conservation
Brent Bushnell	Qwest
Jim Carpita	Montana Heritage Commission
Dick Charest	American Red Cross
Don Contraman	American Red Cross
F. Patrick Crowley	Montana Department of Environmental Quality
Aric Curtiss	Montana Risk Management and Tort Defense
Todd Damrow	Montana Department of Public Health and Human Services
Tom Ellerhoff	Montana Department Environmental Quality
Tanja Fransen	NWS Glasgow
Don Gillespie	Montana National Guard
Tom Gocksch	Montana Department Transportation
John Q. Grainger	Montana Department Livestock
Steve Helgersen	Montana Department of Public Health and Human Services
Bill Henne	Montana Lottery, Criminal Investigation
Kammy Johnson	Montana Department of Public Health and Human Services
Julie Johnson	Montana Heritage Commission
Steve Knecht	Montana Department of Emergency Services
Ed Mahlum	Flathead Electric Coop
Steve Martinka	Montana National Guard
Jim Murphy	Montana Department of Public Health and Human Services
Sean O'Callaghan	State Floodplain Association
Dawn Pizzini	Montana Department Administration, Service Continuity
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Rob Rankin	State DCI
Dan Reilly	Warning Coordinator MET/NWS
Art Robinson	Montana Department of Natural Resources and Conservation
Paula Rosenthal	Montana Department of Natural Resources and Conservation
Laurence Siroky	Montana Department of Natural Resources and Conservation
Mike Stickney	Montana Bureau of Mines and Geology
Walt Timmerman	Montana Fish Wildlife and Parks
Joe Triem	Montana Department of Administration, Architecture
Ron Zellar	Montana Department of Agriculture

District 1 Stakeholders

Curt Belts	Missoula Rural Fire District
Bart Bonney	Granite County Disaster and Emergency Services
Jone Brehm	Red Cross VISTA Volunteer
Bill Caldwell	Missoula Rural Fire District

Stakeholders Group Members	
Jean Curtiss	Missoula County Commissioner
Jason Diehl	Missoula City Fire Department
Peter Felsch	Warning Coordinator MET/NWS
Barbara Gram	Missoula County Commissioner
Earl Hall	University of Montana
Garth Haugund	Beaverhead County Commissioner
Laura Hendrix	Ravalli County
Jolene Jacobson	Confederated Salish Kootenai Tribe Disaster and Emergency Services
Larry Laknar	Beaverhead County Disaster and Emergency Services
Marty Malesich	Mayor of Dillon
Scott Marsh	Beaverhead County
Frank Mastaudrea	Beaverhead County
Archie Matthews	Grasshopper Volunteer Fire Department
Marc McGill	Lincoln County Disaster and Emergency Services
Bill Naegeli	Sanders County Disaster and Emergency Services
Patrick O'Herren	Missoula County Rural Initiatives
Deb Ogden	911- Manager
Eddie D. Patterson, Maj	The Salvation Army
Mark Peck	Flathead County Disaster and Emergency Services
Bob Reid	Missoula County Disaster and Emergency Services
Tom Rice	Beaverhead County Commission
Chase Sackey	Food and Beverage Vender
Martha Smith	District 1 Disaster and Emergency Services Representative
Jay Shaffer	Missoula County Airport Authority
Stephen Stanley	Lake County Disaster and Emergency Services
Colleen Tone	Red Cross Program Specialist
J.S. Turner	City of Dillon - Director of Operations
Byron Van Alsten	Arlee Fire Department
Valena & Wayne Van Der Sande	RSVP/CERT
Leanne Vreeland	Missoula County Health Department
District 2 Stakeholders	
D Bacon	Center for Mental Health
Kathy Bessette	Hill County Commission
Cameron Boggs Jr.	Browning Fire Department Senior Fireman
Richard A. Burrows	Liberty County
Damon Burtin	Glacier County Extension Office
Sharon L. Caven	MSU-Northern
Laura Christiaens	DPHHS/Child and Family Services
Lauriene R. Crane	Case Manager - Mental Health Center
Carla Danielson	Liberty County/Toole County Disaster and Emergency Services
Robert DesRosier	Blackfeet Tribe Disaster and Emergency Services
JoVon J. Fisher	Browning Fire Department Senior Fireman
Patty Geer	Acting Director Hi-Line Recreation
Clete Gregory	Pondera County Disaster and Emergency Services
Haley Gustitis	Blaine County Disaster and Emergency Services

Stakeholders Group Members	
Jim King	Glacier County Disaster and Emergency Services
Ron Knudson	Hill County Disaster and Emergency Services
James Laidlaw	Glacier County Emergency Management Services
Vic Miller	Blaine County Commissioner
Paul Nugent	Hill County SAR
Jerry Otto	County Roads Supervisor
Jamieson Ross	Hill County Sheriff
Avis Spencer	Fort Belknap Tribes
Darell Stafford	Liberty County/Toole County Disaster and Emergency Services
Patrick Stranack	Babb/St. Mary Volunteer Fire Department
Susan Swan	MSU-Northern
Clay Vincent	Hill County Health Sanitation
Michael Wendland	Hill County Commissioner
Arnica Ziebarth	Case Manager - Mental Health Center
District 3 Stakeholders	
Jeff Adams	Montana Rail Link
Lou Antonick	MT Department Administration Emergency Management
Cindy Bender	American Red Cross
Kelly Blake	Lewis and Clark County Planning Department
Sally Buckles	Jefferson County Disaster and Emergency Services
Leo C. Dutton	Lewis and Clark County SO
Adam Edelman	Montana State University, IT Security Manager
Brett Friede	Lewis and Clark County Sheriff's Office
Sharon Hagen	City Community Development Director
Sandra Hare	Lewis and Clark County Disaster and Emergency Services
Mike Henderson	Lewis and Clark County Health Dept
Larry Hoffman	Lewis and Clark County Extension Service
Rocky Infanger	Wolf Creek Fire Department
Dave Jeseritz	County 911 Administrator
Betty Kalakay	Gallatin County Health Department, Emergency Preparedness
Brian LaMoure	County DES/DPHHS
Mark Lerum	Helena City Police Department
Randy Lilje	City of Helena Parks Department
Clint Loobey	Yellowstone Pipeline Company
Tim McCauley	United Way of Lewis and Clark County
Michael McHugh	Helena City Planning Department
Pat McKelvey	Lewis and Clark County, Disaster and Emergency Services
Jim Murphy	State Health Department
Mickey Nelson	Lewis and Clark County Coroner
Beth Norberg	Lewis and Clark County Health Department
Sean O'Callaghan	Gallatin County Floodplain Coordinator
Scott Peterson	Montana Citizen Corps
Frank Presker	Lewis and Clark County Health Department
Glenn Puffer	Montana State University, Student Affairs
Paul Putz	City-County Historic Preservation
Brandt Salo	Helena City Building Dept.

Stakeholders Group Members	
Jason Shrauger	Bozeman Fire Dept/Gallatin County Emergency Management
Kevin Skaalure	KMTX Radio/LEPC member
Eric Spangenberg	City of Helena GIS
Paul Spengler	Lewis and Clark County, Disaster and Emergency Services
Sunny Stigerem	Lewis and Clark County Rural Fire
Alan Stine	Olympus Technical Services
Valentine D. Sworts	Lewis and Clark County Health Department, Preparedness Plan
Buck Taylor	Director Gallatin Community Clinic
Belinda Van Nurden	Disaster and Emergency Services
Rich Weddle	Capital City Amateur Radio Club
Jim Wilbur	Lewis and Clark County Water Quality Protection District
District 4 Stakeholders	
Joy Fleming	City of Miles City
Rob Gilbert Jr	SVFD and Richland County DES
Mike Halen	Custer County Commissioner
Carol Hellyer	Garfield County Disaster and Emergency Services
George Lane	City of Glendive/Fire Chief
Chuck Lee	Disaster and Emergency Services
Clyde Leischner	Holy Rosary Healthcare
Candy Loehding	Carter County Disaster and Emergency Services
Norman R Parrent	District 4 Disaster and Emergency Services Representative
John Marks	City of Miles City
Jody Menyhart	Custer County Nursing & Preparedness
Jack Nesbit	Custer County Commissioner
Butch Renders	Richland County Disaster and Emergency Services
Wendy Richards	Custer County Public Health
Derrick Rodgers	Miles City Fire Department
Alan Stempel	McCone County Disaster and Emergency Services
Jim Zabrocki	Custer County Sanitarian/ Disaster and Emergency Services
Gary Zuroff	City of Glendive
District 5 Stakeholders	
Ed Auker	Big Horn County Disaster and Emergency Services
Annette Cabrera	Yellowstone County Disaster and Emergency Services
John Fleming	Yellowstone County Sherriff
Wyeth Friday	City/County Planning Department
James Fuller	ARRL Montana Section Emergency Coordinator
Jeff Gates	Musselshell county Disaster and Emergency Services
Charlie Hansen	Montana Disaster and Emergency Services
Jim Kraft	Yellowstone County Disaster and Emergency Services
Dianne Lehm	Big Sky Economic Development Administration
Jannelle Luppen	Yellowstone County Disaster and Emergency Services
Ken Mesch	Stillwater County Disaster and Emergency Services
Bill Michaelis	Yellowstone County Sheriff Lieutenant
Linda Oberg	Yellowstone County Disaster and Emergency Services
Carole Raymond	Rosebud County Disaster and Emergency Services
District 6 Stakeholders	
L. Boor	Roosevelt County Health Department

Stakeholders Group Members	
Perry Brzezinski	PIO Fergus County
Dana Buckles	Fort Peck Tribes/TERC
Linda Connor	Fort Peck Tribes - Office of Environmental Protection
Nancy Dimoro	Roosevelt County Health Department
Staci Green	Herald News
Mary Hill	Judith Basin County DES Coordinator
John Jenson	Fergus County Commissioner
Cheri Kilby	Fergus County Disaster and Emergency Services
Wilfred Lambert	Fort Peck - Roosevelt County
Deb Madison	Fort Peck Tribes - Office of Environmental Protection
Gary MacDonald	Roosevelt County Commissioner
Mary Nyhus	General Public
Richard D. Seiler	Valley County Disaster and Emergency Services
Darlene Twitchell	Roosevelt County Health Department

Hazard Technical Group Members	
Drought (2004)	
Jesse Aber, CHAIR	Montana Department of Natural Resources and Conservation
Bruce Bauck	National Weather Service - Missoula
Wayne Berkas	U.S. Geological Survey
Tanja Fransen	National Weather Service - Glasgow
Mark Gruener	Montana Disaster and Emergency Services
Haley Gustitis	Blaine County Disaster and Emergency Services
Gina Loss	National Weather Service - Great Falls
Ron Zellar	Montana Department of Agriculture
Earthquake (2004)	
Mike Stickney, CHAIR	Montana Bureau of Mines and Geology
Dennis Drake	Montana Historical Society
Bob Fry	Montana Disaster and Emergency Services
Lynn Ogle	Flathead County Disaster and Emergency Services
Jason Shrauger	Gallatin County Emergency Management
Lisa Sinton	Teton County Disaster and Emergency Services
Martha Smith	Montana Disaster and Emergency Services
Paul Spengler	Lewis and Clark County Disaster and Emergency Services
Flooding (2004)	
Tom Sanburg, CHAIR	Montana Department of Natural Resources and Conservation
Wayne Berkas	US Geological Survey
Don Contraman	American Red Cross
Tanja Fransen	National Weather Service - Glasgow
Mark Gruener	Montana Disaster and Emergency Services
Gina Loss	National Weather Service - Great Falls
Bob McInerney	US Army Corps of Engineers
Ray Nickless	National Weather Service - Missoula
Lynn Ogle	Flathead County Disaster and Emergency Services
Jim Scarlett	National Weather Service - Billings
Weapons of Mass Destruction/Hazardous Materials (2004)	
Steve Knecht, CHAIR	Montana Disaster and Emergency Services
Sheri Lanz, CHAIR	Montana Disaster and Emergency Services
Lou Antonick	Montana Department of Administration
Dennis Drake	Montana Historical Society
Lynn Ogle	Flathead County Disaster and Emergency Services
Buzzy Peterson	Deer Lodge County Disaster and Emergency Services
Tom Sanburg	Montana Department of Natural Resources and Conservation
Jason Shrauger	Gallatin County Emergency Management
Brett Waters	Montana County Firewarden's Association
Michael Wiederhold	Montana Department of Natural Resources and Conservation
Wildland/Rangeland Fire (2004)	
Paula Rosenthal, CHAIR	Montana Department of Natural Resources and Conservation
Lou Antonick	Montana Department of Administration
Bruce Bauck	National Weather Service - Missoula
Dan Borsum	National Weather Service - Billings
Sally Buckles	Jefferson County Disaster and Emergency Services

Hazard Technical Group Members	
Wildland/Rangeland Fire (2004)	
Margie Ewing	U.S. Forest Service
Tanja Fransen	National Weather Service – Glasgow
Bob Fry	Montana Disaster and Emergency Services
Mark Gruener	Montana Disaster and Emergency Services
Pat McKelvey	Lewis and Clark County Disaster and Emergency Services
Bernie Meier	National Weather Service – Great Falls
Ray Mohney	American Red Cross
Curtis Petrik	Sheridan County Disaster and Emergency Services
Cathy Scofield	US Forest Service
Jason Shrauger	Gallatin County Emergency Management
Brett Waters	Montana County Firewarden's Association
Michael Wiederhold	Montana Department of Natural Resources and Conservation
Tornado, Hail, and Wind (2004)	
Rick Dittmann, CHAIR	National Weather Service – Great Falls
Tanja Fransen	National Weather Service – Glasgow
Pat Hansen	Sweet Grass County Disaster and Emergency Services
Curtis Petrik	Sheridan County Disaster and Emergency Services
Carole Raymond	Rosebud County Disaster and Emergency Services
Jim Scarlett	National Weather Service - Billings
Winter Storms (2004)	
Peter Felsch, CHAIR	National Weather Service – Missoula
Bruce Bauck	National Weather Service – Missoula
Rick Dittmann	National Weather Service – Great Falls
Tanja Fransen	National Weather Service – Glasgow
Mark Gruener	Montana Disaster and Emergency Services
Jim Hyatt	Montana Department of Transportation
Jim Scarlett	National Weather Service - Billings
Jason Shrauger	Gallatin County Emergency Management
Critical Facilities (2004)	
Steve Knecht, CHAIR	Montana Disaster and Emergency Services
Sheri Lanz, CHAIR	Montana Disaster and Emergency Services
Lou Antonick	Montana Department of Administration
Dennis Drake	Montana Historical Society
Jim Hyatt	Montana Department of Transportation
Lynn Ogle	Flathead County Disaster and Emergency Services
Diane West	Montana Department of Labor and Industry
Communicable Disease (2007)	
Art Bicsac	Montana Department of Public Health and Human Services
George Harris	Montana Department of Livestock
Steve Helgersen	Montana Department of Public Health and Human Services
Kammy Johnson	Montana Department of Public Health and Human Services
Kimberly Merenz	Montana Department of Agriculture
Jim Murphy	Montana Department of Public Health and Human Services
Ron Zellar	Montana Department of Agriculture

Invited Participants

State Agencies

Montana Air National Guard	David Haverfield
Montana Bureau of Mines and Geology	Mike Stickney
Montana Department of Administration	Lou Antonick
Montana Department of Administration/ Architecture & Engineering	Joe Triem
Montana Department of Administration / Risk Management	Aric Curtiss
Montana Department of Administration / Montana Lottery	John Tarr
Montana Department of Agriculture /Central Management	Ron Zellar
Montana Department of Corrections	Mike Ferriter
Montana Department of Environmental Quality	Ed Coleman
Montana Department of Justice /Criminal Investigation	Randy Middlebrook
Montana Department of Military Affairs/Centralized Services	John Horn
Montana Department of Livestock	George Harris
Montana Department of Natural Resources and Conservation /Water Resources	Jesse Aber
Montana Department of Natural Resources and Conservation / Forestry	Paula Rosenthal
Montana Department of Natural Resources and Conservation/ Centralized Services	Mary Sexton
Montana Department of Natural Resources and Conservation / Water Resources	Laurence Siroky
Montana Department of Public Health and Human Services	Joan Miles
Montana Department of Public Health and Human Services / Public Health Emergency Preparedness Section	Jim Murphy
Montana Department of Revenue / Resource Management	Sandy Lang
Montana Department of Transportation	John Axline
Montana Disaster and Emergency Services	Jens Bolstad
Montana Disaster and Emergency Services	Steve Knecht
Montana Disaster and Emergency Services	Sheri Lanz
Montana Disaster and Emergency Services	Monique Lay
Montana Disaster and Emergency Services	Dan McGowan
Montana Disaster and Emergency Services	Bob Fry
Montana Disaster and Emergency Services	Mark Gruener
Montana Disaster and Emergency Services	Norman R Parrent
Montana Disaster and Emergency Services	Charlie Hanson
Montana Disaster and Emergency Services	Martha Jo Smith
Montana Disaster and Emergency Services	Ed Gierke
Montana Disaster and Emergency Services	Reno Chalett
Montana Disaster and Emergency Services	Kent Atwood
Montana Executive Office	Sheena Wilson
Montana Fish, Wildlife & Parks	M. Jeff Hagener
Montana Fish, Wildlife & Parks	Joe Maurier
Montana Heritage Commission	Paul Reichert
Montana Historical Society	Mark Baumler
Montana National Guard	MG Randall Mosley

Invited Participants	
Montana Lieutenant Governor's Office	John Bohlinger
Montana State Auditor's Office / Insurance	Cheri Meier
Montana State Auditor's Office	John Morrison
Montana University System, Extension Service	Michael Vogel
Montana University System, MSU-Billings	Eakle Barfield
Montana University System, MSU-Bozeman	Glenn Puffer
Montana University System, MSU-Bozeman	Jeff Shada
Montana University System, MSU-Great Falls College of Technology	Mary Ellen Baukol
Montana University System, MSU-Northern	Sharon Caven
Montana University System, MT Tech of UM	Marilyn Cameron
Montana University System, UM-Helena College of Technology	Russ Fillner
Montana University System, UM-Missoula	Lt. Gary Taylor
Montana University System, UM-Western	Nicole Hazelbaker
Federal Agencies	
Air Force EPLO	Col. Howard Plouffe
Libby Dam Project	Charlie Come
Malmstrom AFB	Royce Shipley
National Weather Service - Glasgow	Steven Apfel
National Weather Service - Glasgow	Tanja Fransen
National Weather Service - Great Falls	Gina Loss
National Weather Service - Great Falls	Bernie Meier
National Weather Service - Great Falls	Dan Reilly
National Weather Service - Missoula	Peter Felsch
National Weather Service - Missoula	Bruce Bauck
National Weather Service - Missoula	Ray Nickless
National Weather Service - Billings	Tom Frieders
National Weather Service - Billings	Keith Meier
Navy EPLO	Capt. Chris Nygren
U.S. Army Corp of Engineers	Bob McInerney
U.S. Forest Service	Margie Ewing
U.S. Forest Service	Cathy Scofield
U.S. Geological Survey	Wayne Berkas
Local and District Disaster and Emergency Service Coordinators	
Beaverhead Disaster and Emergency Services	Larry G. Laknar
Big Horn Disaster and Emergency Services	Ed Auker
Blaine County Disaster and Emergency Services	Haley Gustitis
Blackfeet Tribe	Mark Keller
Broadwater County Disaster and Emergency Services	Bill Fleiner
Carbon Disaster and Emergency Services	Darrel Krum
Carter Disaster and Emergency Services	Candy Loehding
Cascade County Disaster and Emergency Services	Vince Kolar
Choteau Disaster and Emergency Services	Linda Williams
Confederated Salish and Kootenai Tribes	Jolene Jacobson
Crow Agency	William Driftwood
Custer Disaster and Emergency Services	James Zabrocki
Dawson Disaster and Emergency Services	Helen Conradsen

Invited Participants	
Deer Lodge Office of Emergency Services	Bill Converse
Fallon Disaster and Emergency Services	Sam Thielen
Fergus Disaster and Emergency Services	Tom Killham
Flathead Office of Emergency Services	Mark Peck
Fort Belknap	C. John Healy
Fort Peck Assiniboine and Sioux Tribes	Lee Abbot
Fort Peck Assiniboine and Sioux Tribes	Arlyn Headdress
Gallatin County Emergency Management	Jason Shrauger
Garfield County Disaster and Emergency Services	Carol L. Hellyer
Glacier Disaster and Emergency Services	Jim King
Golden Valley Civil Defense	Floyd Fisher
Granite Office of Emergency Services	Bart Bonney
Hill Disaster and Emergency Services	Ronald Knudson
Jefferson County Disaster and Emergency Services	Sally Buckles
Judith Basin Disaster and Emergency Services	Mary Hill
Lake Office of Emergency Management	Steve Stanley
Lewis and Clark County Disaster and Emergency Services	Pat McKelvey
Lewis and Clark County Disaster and Emergency Services	Paul Spengler
Liberty Disaster and Emergency Services	Darrel Stafford
Lincoln Emergency Management Agency	Marc McGill
Madison Disaster and Emergency Services	Frank R. Ford
McCone County Disaster and Emergency Services	Alan Stempel
Meagher Disaster and Emergency Services	Richard E Seidlitz
Mineral Office of Emergency Management	George M. Gupton
Missoula Office of Emergency Management	Bob Reid
Musselshell Disaster and Emergency Services	Jeff Gates
Northern Cheyenne Board of Health	Ernestine Spang
Park Disaster and Emergency Services	Belinda Van Nurden
Petroleum Disaster and Emergency Services	John Taylor
Phillips County	Scott Moran
Pondera Disaster and Emergency Services	Cindy Mullaney
Powder River Disaster and Emergency Services	Stanley J. Totcky
Powell County Office of Emergency Management	Bernard K. Barton
Prairie Disaster and Emergency Services	John Pisk
Ravalli Office of Emergency Management	Ron Nicholas
Richland County Disaster and Emergency Services	Butch Render
Rocky Boy Reservation - Chippewa-Cree Tribe	Donita Demontiney
Roosevelt County Disaster and Emergency Services	Dan Sietsema
Rosebud County Disaster and Emergency Services	Carole Raymond
Sanders Office of Emergency Management	Bill Naegeli
Sheridan/Daniels Counties Disaster and Emergency Services	Curtis Petrick
Stillwater Disaster and Emergency Services	Ken Mesch
Sweet Grass County Disaster and Emergency Services	Kerry O'Connell
Teton County Disaster and Emergency Services	Lisa Sinton
Butte / Silver Bow Office of Emergency Management	Roger Ebner
Toole Disaster and Emergency Services	Darrell Stafford

Invited Participants	
Treasure Disaster and Emergency Services	Pat Zent
Valley County Disaster and Emergency Services	Richard Seiler
Wheatland Disaster and Emergency Services	David Jone
Wibaux County	Frank V. Datta
Yellowstone Disaster and Emergency Services	James L. Kraft
Non-Profits/Associations	
American Red Cross	Don Contraman
American Red Cross	Ray Mohny
Montana Association of Counties	Harrold Blattie
Montana League of Cities and Towns	Alec N. Hansen
Rural Electric Cooperatives and Utilities	
Beartooth Electric Cooperative	Robert Walker
Big Flat Electric	Jeanne Barnard
Fall River Rural Electric Co-op	Clyde Seely
Fergus Electric Cooperative	Scott Sweeney
Flathead Electric Cooperative	Ken Sugden
Glacier Electric Cooperative	Jason Bronec
Goldenwest Electric Cooperative	John Sokoloski
Hill County Electric Cooperative	Rick Stevens
Lincoln Electric	Mike Henry
Lower Yellowstone Rural Electric Co-op	Don Prevost
Marias River Electric	Mark Grotbo
McCone Electric Cooperative	Mike Kays
Mid-Yellowstone Electric	Ted Church
Missoula Electric Cooperative	Tony Sinclair
Northern Electric Cooperative	Larry Tade
Northern Lights Inc.	Jon Shelby
Park Electric	Doug Hardy
Ravalli Electric Cooperative	Ric Brown
Sheridan Electric Cooperative	Bill Schell
Southeast Electric	Jack Hamblin
Sun River Electric	Scott Odegard
Tongue River Electric	Alan See
Utilities Underground Location Center	Bud Criner
Valley Electric Cooperative	Larry Tade
Vigilante Electric	Dave Alberi
Yellowstone Valley Electric	Terry Holzer

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE STAKEHOLDERS MEETING

DATE: April 19, 2007

LOCATION: Fort Harrison

Name	Jurisdiction/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
<i>David G. Ford</i>	<i>Fort Harrison</i>	<i>10</i>	<i>ford.g.ford@fort-harrison.mt.gov</i>
DAVE BIGGAR	FLATHED Elec. Co-op	200	dave.biggar@flathedelectric.com
Ed Mahlum	Flathed Elec Co-op	200	eflight@hotmail.com
Don Contreras	American Red Cross	200	don@spinningfiber.net
Mike Stickney	MT. Bureau of Mines & Geol	140	mstickney@mttech.edu
Kurt Battush	muco (Utility One Call)	180	battush@3riversdbs.net
LAWRENCE SIOUX	MT DNR, Chief wab	in town	lsioax@mt.gov
John Q. Grainger	MT Dept Livestock BE Admin	5	jgrainger@mt.gov
Joe Triem	Dept of Admin, Architecture & Engineering Div / Planning Mgr	5	jtriem@mt.gov
BILL HENNE	MT. LOTTERY - CAMPAIGN INV.	5	bhenne@mt.gov
ARIC CURTIS	MT Risk Mgmt + Tech Service	5	ACurtis@mt.gov
WALT TIMMERMAN	MONTANA FISH, WILDLIFE & PARKS	7(?)	WTimmerman@mt.gov

Meeting Start Time: 12:30

Meeting End Time: 4:30

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE STAKEHOLDERS MEETING

DATE: April 19, 2007

LOCATION: Fort Harrison

Name	Jurisdiction/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
LARRY B. AKERS	STATEwide	32	alshab@iwi.net
PAUL SPENGLER	LAKE CO DES/PA	6	Paul.Spengl@lakeco.mt.us
Chuck Lee	Fallon County DES/PA	96	lee@fallencounty.net
Garre Raymond	Rosebud Co. DES	612	garmon@rosebudcountymt.com
Chen Kilby	Fergus Co DES	387	des@co.fergus.mt.us
CANDY KOENIG	CARTER Co DES	1000	cloehding@midriders.com
Bolinda Van Nuden	Park Co. DES	252	des@parkcounty.org
Gary Macdonald	Missoula Co Comm. MPR	825	gary@missoula-county.mt.us
Laas A. Allesstad	Safety Director Hill Co. Electric	400	laas.allesstad@mtstate.net
Don Trevas	Logan Yellowstone R&M	960	Don@DLREC
Steve Huchat	STATE/WIDES REGION	0	shuchat@mt.gov
Bob Rankin	State/DCT	0	rankin@mt.gov

Meeting Start Time: 12:30

Meeting End Time: 4:30

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE STAKEHOLDERS MEETING

DATE: April 19, 2007

LOCATION: Fort Harrison

Name	Jurisdiction/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Art Robinson	DNRC - Area Safety	10	arobinson@mt.gov
Millie Bowman	DNRC - Map and Coordinator	10	mbowman@mt.gov
Butch Renders	Richland Co. DES	910	des@richland.org
Tom Gocksch	MDT.	10	Tgoeksch@mt.gov
Steve Montague	MT NG	0	Steve.Montague@us.army.mil
Don Gillespie	MTNG	0	donald.j.gillespie@us.army.mil
Nan Johnson	FEMA R8 Mitigation Div (Denver CO)		nan.johnson@dhs.gov
Tom Ellenhoff	DEQ	7	tellenhoff@mt.gov
Dan Reilly	Nat'l Wild Service	170	dan.reilly@nwsa.gov
Daphne Dymondakis	Tetra Tech		daphne.dymondakis@tetra-tech.com
Patricia Levey	L & C Deputy DES		patricia.levey@co.lewis-clark.mt.us
Art Bicsak	DPHHS - PHERP COORDINATOR	8	ABICS@MT.GOV

Meeting Start Time: 12:30

Meeting End Time: 4:30

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE STAKEHOLDERS MEETING

DATE: April 19, 2007

LOCATION: Fort Harrison

Name	Jurisdiction/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Ron Zellar	Proj/Projects MT Dept. of Agriculture	10	rzellar@mt.gov
Mary Hill	Summit Basin Co	248	des@co.judith-basin.mt.us
Mary Beer	Tetra Tech		mary.belle.tetra@comcast.net
Lynn Peterson	Tetra Tech		lynn.peterson@tetra-tech.com
Paula Rosenblatt	SNRE	240	prosen@mt.gov
Sean O'Callaghan	Gallatin Co. Forest Plan Coord.	180	sean.o'callaghan@gallatin.mt.gov

Meeting Start Time: 12:30

Meeting End Time: 4:30

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE STAKEHOLDERS PLAN REVIEW MEETING

DATE: Wednesday, August 8, 2007

LOCATION: Fort Harrison, Montana

Name	Affiliation	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digridakis	Tetra Tech	17	daphne.digridakis@tetra-tech.com
KENT ANWOOD	MT-DES		natwood@mt.gov
Art Robinson	ONRC	6	arobinson@mt.gov
Cheryl Richman	MDT	12	CRICHMAN@MT.GOV
LARRY B. AKERS	Civilian	30	410426@ixi.net
Don Reilly	National Weather Service	~164	dan.reilly@noaa.gov
Paul Spengler	LCO DES	6	447-8285
Bryce Moore	Ken's Catering	5	439-2166
Bryce Flammard	Ken's Catering	3	873-4792
Sheri Lanz	MT DES	—	841-3969
Andee Dunick	MT DES	—	841-3957
Ty Hilger	MT DES	—	thilger@mt.gov

see other sheet

Meeting Start Time: 1100 am

Meeting End Time: 230 pm

attended 8/14/07

LOCATION: Fort Harrison, Montana

[illegible]

Meeting Start Time: 11:00 am

Meeting End Time: 2:00 pm

Entered 2/9/07

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**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes



UPDATE TO THE STATE OF MONTANA PDM PLAN STAKEHOLDER MEETING

Date: Thursday, April 19, 2007

Time: 12:30 pm – 4:30 pm

Place: Fort Harrison, Montana

Meeting Attendance:

Dave Biggar, Flathead Electric Coop
Ed Mahlum, Flathead Electric Coop
Don Contraman, American Red Cross
Mike Stickney, Montana Bureau of Mines and Geology
Kurt Baltrusch, MUCC (Utility One Call)
Laurence Siroky, MT DNRC, Chief WOB
John Q. Grainger, MT Dept. Livestock, BE Admin
Joe Triem, MT Dept. Admin, Architecture & Engineering Div. - Planning Manager
Bill Henne, MT Lottery, Criminal Investigation
Aric Curtiss, MT Risk Management and Tort Defense
Walt Timmerman, MT Fish, Wildlife and Parks
Paul Spengler, Lewis & Clark Co. DES Coordinator
Chuck Lee, Fallon Co. DES Coordinator
Carole Raymond, Rosebud Co. DES Coordinator
Cheri Kilby, Fergus Co. DES Coordinator
Candy Loehding, Carter Co. DES Coordinator
Belinda Van Nurden, Park Co. DES Coordinator
Gary Macdonald, Roosevelt County Commissioner
Lars A. Allestad, Hill County Electric, Safety Officer
Don Prevost, General Manager of Lower Yellowstone Rural Electric Co-op
Steve Knecht, Montana DES, Operations Chief
Rob Rankin, State DCI
Art Robinson, DNRC - Dam Safety
Millie Bowman, DNRC - Map Mod Coordinator
Butch Renders, Richland County DES Coordinator
Tom Gocksch, MT Dept. Transportation
Steve Mantinka, MT National Guard
Don Gillespie, MT National Guard
Nan Johnson, Mitigation Division, Region 8, FEMA
Tom Ellerhoff, MT Dept. Environmental Quality
Dan Reilly, National Weather Service
Pat McKelvey, Lewis & Clark Deputy DES Coordinator
Art Bicsak, MT Dept. Public Health and Human Services
Ron Zellar, MT Dept. Agriculture, PIO/Projects
Mary Hill, Judith Basin Co. DES Coordinator
Paula Rosenthal, Dept. of Natural Resources and Conservation
Sean O'Callaghan, Gallatin Co. Floodplain Coordinator
Kent Atwood, State of Montana – DES

Larry Akers, Contractor
Daphne Digrindakis, Contractor
Fred Gifford, Contractor
Mary Bell, Contractor
Lynn Peterson, Contractor

Nan Johnson (Mitigation Division, Region 8, FEMA) on State and Local Plans:

Montana has a good State Plan but FEMA is hoping the state will build on the first plan. Local plans are also good. Lewis and Clark Co. noted that their local plan is good because they did it themselves. However, it was noted that when the plan was run through the crosswalk, it didn't meet all the crosswalk criteria so the county fixed this problem. It was also wondered how many plans interact with all the other plans?

Ms. Johnson noted that project impact was mentioned but the PDMC has no identification. Mitigation has to be the major cornerstone of emergency management instead of response and recovery. This is seen from the federal level down to the local level. An example of this is the Forest Service budget. A total of 47% of the budget was spent on firefighting near the WUI. Will next year be 50%? Mitigation must be moved to the forefront.

State buildings, facilities and infrastructure need to be included in the State and University plans. The map mod plan must be addressed in the State plan along with a discussion of hazards.

Kent Atwood (Montana DES) on a Review of PDM Meetings:

In 2000, the state had only six approved plans. Today, 42 local plans have been approved.

Another meeting is scheduled after Labor Day to review the State plan.

Mr. Atwood asked if the ten hazards addressed in the 2004 State Plan are still relevant today.

Dan Reilly suggested that straight line winds may need to be added to the top hazards list. Currently, winds are lumped with winter and summer storms.

Discussion also focused on the livestock industry as a possible hazard. It was noted that a livestock truck from Canada tipped over recently. This was a non stop quarantine truck headed for feed lots in other states.

Paul Spengler felt that the 10 hazards were appropriate and that it would be too much to take on additional hazards.

Pandemic flu and biological hazards were also mentioned as possible threats. However, these hazards probably concern preparedness rather than mitigation. For instance, the Health Dept. has plans for pandemic flu and biological hazards. Each jurisdiction is responsible for their planning. Biological and agricultural terrorism need to be separated out as different from mitigatable hazards (natural hazards and hazardous material incidents). Discussion also focused on hazards that could cause complete loss of IT systems, like earthquakes, terrorism and violence, hacking and other human interference. These hazards would be funded by other sources, not FEMA mitigation programs.

It was wondered if there is any redundancy in Local Emergency Plans for each county. The consensus was negative as most counties are very involved in the PDM plans.

Discussion returned to the topic of human diseases and pandemics. It was noted that the primary agency for this hazard is the Dept. of Public Health and Human Services. However, many participants felt that communicable disease is relevant as a hazard and should be included in the State Plan. It was pointed out that FEMA does not consider communicable disease as a mitigatable hazard; however, this hazard can be in the State Plan if people want it there.

A question arose on why man-made hazards should be addressed if they are not FEMA eligible. It was noted that if a man-made hazard is a direct or indirect result from a natural hazard, a mitigation project for the man-made hazard may get funded. Again, it was noted that non-mitigatable hazards may be included in the State Plan because people want them included. Additionally, projects should be identified in local or state plans in order to apply for funding. Other possible hazards mentioned include fire ants and killer bees. These hazards can be included as long as they can be proved with a benefit cost analysis in an application.

Guest Speaker Mike Stickney (Montana Bureau of Mines and Geology) on Earthquakes:

A total of 27,000 earthquakes have been recorded in Montana. There are 45 active or potentially active faults in the state; most have not been studied in detail. The National Seismic hazard map is the Montana basis for building codes. National Seismic map uses peak acceleration figures (%g) which participants found confusing. Mr. Stickney noted that the probabilistic seismic hazard map is like a rain forecast, it predicts how much rain (or strength of shaking) you might get. Helena has a 10% chance of experiencing 15%g of shaking in any 50-year period. The average human can detect ground acceleration of 1% g. A total of 1g shaking equals total destruction of any city. The 1930s Helena earthquake was 13%g acceleration. As part of dam safety, any earthquake that has 0.5%g shaking results in an automatic inspection of dam facilities.

Mr. Stickney also discussed the July 2005 Dillon earthquake (15%g) which occurred on a non-mapped, blind fault. The USGS records earthquake range with a "did you feel it?" map. Earthquakes can cause cracks in the ground which can affect underground utilities. The Dillon quake did not cause liquefaction of soils. The largest aftershock was 4.2

magnitude on the Richter scale. A very large area continued to experience small aftershocks; this area expanded with time. Aftershocks continued through October 2005 and daily/weekly shocks continue through today. Participants wondered if there was a way to tell if an event is an aftershock or a pre-shock. Mr. Stickney replied that the answer is complex and related to temporary or permanent groundwater shifts.

Since the first State PDM Plan, Montana has more seismograph network sensors on line. Two stations were added above Big Sandy and near Red Lodge. These record real time data. Between May 2004 and Sept. 2006, a total of 4357 earthquakes were recorded; three of these were 4.6 magnitude or larger. Between 1880 and the present, Montana has experienced many earthquakes that are larger than 5.0. Earthquakes with a magnitude 6.0 or larger occurred every 10 years from 1920 to 1960. Currently, we may be in an earthquake "drought".

Mr. Stickney noted that changes have occurred in the county population chart from 1960-2000. Most of the counties gaining population are in the seismic zones.

The Iron Gulch Fault Escarpment Investigation in the Scratchgravel Hills of northwest Helena Valley was discussed. The investigation concluded the escarpment is the result of a flood deposit, not a fault zone.

It was suggested that the State PDM Plan update include SP 117 data. The State Hazard Mitigation Officer has this data and will forward to Tetra Tech, Inc.

Participants also discussed the Yellowstone Caldera. Mr. Stickney explained that there is no imminent danger from the caldera. The bulging bottom of the lake bed is probably old structures. Humans have not witnessed the really big events that occur every 600,000 years. It is likely that we would see more activity in the normal volcanic channels or more traditional earthquake events before we would see a caldera type event.

Ms. Digrindakis suggested that participants think about mitigation projects for earthquakes. The Montana Dept. of Transportation noted that the agency is pursuing four bridge mitigation projects as wells I-15 corridor projects already on the books.

Guest Speaker Dan Reilly (National Weather Service) on Severe Weather Hazards:

Mr. Reilly presented national statistics on Montana injuries and fatalities due to weather hazards from 1950 to 2006. Wind is the greatest source of injuries (n=42). Reports by month from 1980 to 2005 for hail, high wind and tornadoes indicate peak activity in June, July and August. Thunderstorm flash density is most common in south/southeast Montana. For severe weather fatalities, Montana is in the top five for the nation between 1997 and 2006. Tornadoes reported, F0 or greater, have occurred from 1950-2003. The southeast portion of the state may be under reported for tornadoes. Hail reports from 1950-2003 cite very strong wind events, >75 mph. A wind gust of 118 mph occurred at Heart Butte near the Blackfeet Reservation.

Flooding and the possibility of dam failure were briefly mentioned. Concerning severe winter weather, Montana ranks fifth in the nation for avalanche fatalities. Montana has experienced drought cycles since 1900 (based on annual departure from mean stream flow of the Missouri River).

Mr. Reilly also discussed the connection between wildfire and drought and the need to mitigate the impacts of these hazards.

Participants asked about the protocols for issuing heavy snow warnings. Warnings are issued with 6" of snow in the valleys and 12" in the mountains.

Guest Speaker Paula Rosenthal (Dept. of Natural Resources and Conservation) on Wildfire in Montana:

DNRC data indicates the 2005 fire season experienced 478 fires that burned 477,000 acres. The total cost was \$60 million and the net cost was \$35 million. There were three FEMA assist incidents (FMAG). The first fire occurred on Jan. 8th and the last fire occurred on Nov. 22nd. The busiest day was August 10th when 28 new fires were reported.

Ms. Rosenthal discussed fire in the Wildland Urban Interface (WUI). This is a safety issue for the public and private citizens. Critical infrastructure is also at risk. According to the Jan. 2007 Cost Report, 39% of DNRC fire protection occurs in the WUI, but 66% of all fires occurred in these areas. WUI fires cost 46% more to suppress than non WUI fires. Large fires (over 10 acres) account for less than 5% of wildland fires but account for over 89% of total firefighting cost.

Mitigation projects include private properties fuels mitigation assistance program and supertreating the slash of logging near WUI areas mandated by DNRC to up to 90% removal.

The PDM/CWPP planning is ongoing with the BLM and DNRC as participants. It was questioned if the National Fire Plan is in decline? Ms. Rosenthal noted that it is still fluctuating but appears to be ongoing. Local jurisdictions can apply. The DNRC would like to tap into FEMA PDM funds for mitigation. The agency would like FEMA to allow the DNRC to apply for PDMC on behalf of a group of counties or jurisdictions. The Benefit Cost Analysis is too cumbersome and the definitive nature of specific locations is too difficult. The required latitude/longitude coordinates is driving people away from utilizing PDMC grants. Other funding sources are easier to apply for.

Fire in the WUI will only get worse. Development pressure is intense in the middle of the forest. There were 42,000 new residents in Montana last year.

It was noted that the insurance industry and environmental groups should have attended the meeting as stakeholders. Other agencies with land management responsibilities in Montana that should have been at the Stakeholders Meeting include the Forest Service,

the BLM, and the National Park Service. It was also noted that the Tribes were not in attendance. Some of these groups were invited but did not come.

Guest Speaker Sean O'Callaghan (Gallatin Co. Floodplain Coordinator) on Flooding:

Flood hazards are not well mapped as this is an insurmountable task. Funding dollars are given out based on population and there is no match in Montana. The state of Montana experiences more ice jams than any other state in the nation. This is largely due to the Yellowstone and Milk rivers. Montana has experienced more rapid snowmelt in recent years which may be related to global warming. Rain on snow events, coupled with undersized storm drains or culverts, cause nuisance flooding across the state. Rapid snowmelt may be a more significant threat of flooding due to climate change.

Mitigation concerns include an aging infrastructure that when replaced, should ensure a minimum of 2-ft. of freeboard for a 100-year flood event. The same criterion should be applied to culverts. Additionally, pre-existing dikes and levees haven't been well maintained and this issue needs to be resolved as most of these structures do not meet current FEMA standards. Flood maps are changing due to this non-certification; Miles City is one example and there are other cities as well. Mr. O'Callaghan noted that levees actually raise elevation of the 100-year flood and channelize flood waters which increase downstream flood hazards. Additionally, bank stabilization projects with hard armoring increases velocities of water with detrimental downstream effects.

It was noted that the Association of Montana Floodplain Administrators should stay involved with updating the PDM Plan and the new president, Laura Hendrix, should be invited to the next meeting.

The flood discussion concluded with the observation that when flooding occurs, the local Floodplain Administrators should be notified in addition to the DES coordinators and local responders. Potential mitigation projects include additional floodplain mapping and the relocation of residences outside the floodplains.

Daphne Digrindakis (Tetra Tech, Inc.) on Review of Hazard Risk Maps:

Drought: Central and eastern Montana appear to be more at risk from this hazard.

Earthquake: Flathead County, rated at medium risk, was thought to be too high. However, it was noted that it is up to the local LEPC to change their risk rating. Mike Stickney observed that Lake and Missoula counties could be upgraded from medium to high risk.

Flood: This includes dam failure.

Hazardous Material Incident: Counties were rated as high risk if they are located near the Canadian border or have universities or interstate routes.

Landslide: It was noted that Beaverhead and Madison counties are at high risk for this hazard. However, this hazard was not assessed by these counties. The Montana Bureau of Mines has a landslide map for Montana that can be used to verify and improve hazard ratings.

Terrorism and Violence: Gallatin County called and requested that their risk be upgraded to high based on a document to follow. It was also suggested that Missoula (medium risk) and Lewis & Clark (not assessed) counties might upgrade their risk.

Severe Thunderstorm, Hail, Wind and Tornado: Majority of counties are rated high risk.

Volcanic Eruption: All counties are rated low risk or not assessed.

Wildfire: All counties are rated as high risk except Mineral and Silver Bow. However, Mineral County requested an upgrade to high and Pat McKelvey noted that Silver Bow should also be high risk based on the condition of the county forests.

Winterstorms: Majority of counties are rated high risk.

2004 Mitigation Goals:

It was noted that mitigation goals should be eligible for the Pre-Disaster Mitigation Competitive (PDMC) program.

State Plan Update Exercises:

In the first exercise, participants were asked to rank each goal from 1 to 8 (with 1 the highest priority). Rankings were totaled with the following results:

1. Maximize the use of mitigation actions that prevent losses from all hazards.
2. Reduce the community impacts of wildland and rangeland fires.
3. Increase State's capability to provide mitigation opportunities.
4. Mitigate the potential loss of life and property from flooding.
5. Reduce potential earthquake losses in western Montana.
6. Minimize economic impacts of drought.
7. Reduce impacts from severe winter weather.
8. Encourage mitigation of potentially devastating but historically less frequent hazard.

In a second exercise, participants were asked to rank each mitigation objective from the State Plan as high, medium or low priority.

In a third exercise, participants were asked to list any new goals or objectives they would like to see included in the State Plan update. It was noted that floodplain ordinances need to be added and enforced.

**STATE OF MONTANA PDM PLAN UPDATE
STAKEHOLDER PLAN REVIEW MEETING
8 AUGUST 2007
FORT HARRISON, MT**

Start Time: 11:00 a.m.

Finish Time: 2:30 p.m.

Kent welcomed the group.

Groups Present: Larry Akers, Paul Spengler-L&C C., Dan Reilly-NWS, Cheryl Richmond-MDT, Art Robinson-DNRC, Daphne Digrindakis-Tetra Tech, Kent Atwood-SHMO.

Reviewed Hazard Risk Maps:

Establishing format for local plan review. State's philosophy that man-made hazards are included as well as natural hazards. Include in local integration section.

Communicable Disease – no comment

Earthquake – Powell, Flathead, Silver Bow should be high. Quantitative maps included in plan are adequate.

Flood – Carbon County; 2 dams above Red Lodge on USFS – maybe should be high. Flathead County; Hungry Horse dam would affect Columbia Falls – lots of recent development – maybe should be high.

Hazardous Materials – no comments

Landslide – Lincoln wants to upgrade to High. Beaverhead County should assess due to hydrophobic soil. Glacier County had St. Mary fire which caused debris flow – should be assessed. Lewis and Clark will assess in next revision.

Terrorism – no comment

Volcanic Eruption – no comment

Winter Storm – Sweet Grass may want to change their rating

Drought – no comments

Summer Weather – Wibaux and Fallon maybe should be upgraded.

Wildfire – Mineral will be upgraded to high. Drought slides should mimic wildfire.

Review Protocol – Pay for ads announcing review period and provide copy of plan on CD to one library in each county/reservation. E-mail to stakeholder list.

Mitigation Goals – state projects don't correspond to goal priorities but they do on the local level.

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Mitigation Projects – projects in the “under consideration” category can be developed more fully in the future and included in next State Plan update as “specific” action.

Appears that local response projects are listed but is difficult to separate. We understand the difference. Important enough to locals to mention in the plan. Page 2-4 line 50

Goal 1: Objective 1.1 – OK

Goal 1: Objective 1.2 – “reverse 911” is proprietary and should be changed to “emergency telephone notification system”. Line 6 & 19

Change develop to “update” or “publicize” EAS plan. EAS system developed in 2005. Dan will provide verbiage. Line 29.

Omit line 14 – omit satellite plan

Omit line 15 – omit E-warn system

Correct line 7 – omit word “technical”

Goal 1: Objective 1.3 – OK

Goal 1: Objective 1.4 – OK

Goal 1: Objective 1.5 – line 28 drop “fire agency standard operating procedures” and replace with policies for mitigating loss of historic sites

Goal 2: Objective 2.1 – line 8 – reword and move to “specific” project. Develop standardized rating system for looking at hazard. Add “specific” project for protocol (template) for looking at risk/vulnerability/hazards for use in updating local plans. Project for State Hazard Mitigation Team. DHS is developing this.

Delete line 5

Goal 2: Objective 2.2 – OK

Goal 2: Objective 2.3 – line 6 add DMA.

Add “specific” project State Hazard Mitigation Team will establish priorities for the state and rank projects on an annual basis.

Line 15 – drop “mitigation of”

Acronym – DOA should be Montana Dept. of Administration instead of MDA.

Goal 2: Objective 2.4 (omit objective – move projects to 2.3)

Omit 12 on programmatic

Omit 14 on MOUs

Line 15 create private sector advisory group instead of citizen group

Goal 3: Objective 3.1

Line 27 – change “efforts” to projects

Line 35 – change than to that. Replace Firesafe/Firewise with Firesafe Montana. Move from potential to specific project.

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Goal 3: Objective 3.2

Omit 42 on fuel reduction in CRP

Reword 47 "encourage" instead of conduct for weed control on railroad

Line 2 on 4-9 – move up to local projects

Goal 3: Objective 3.3

Line 20 - add Firesafe Montana

Line 21 - omit highway signs – leave billboards

Goal 3: Objective 3.4

Line 36 – take out "firmly limit" change to "mitigate"

Line 37 – change wording to "adopt mitigation standards in high growth areas"

Line 42 – change develop to "encourage"

Line 39 – add "a" home inspection

Goal 3: Objective 3.5

Omit 3 on page 4-10 – shelter in place

Omit 2 – big business

Goal 3: Objective 3.6 - OK

Goal 4: Objective 4.1

Line 26 move to local

Goal 4: Objective 4.2

Omit Line 41

Goal 4: Objective 4.3 - OK

Goal 5: Objective 5.1

Line 23 - coordinate with NWS – DAN will check what they need

Goal 5: Objective 5.2

Line 42 – add specific project – encourage jurisdictions to pursue mitigation of repetitive loss structures (see Kent's notes)

Line 40 – should be local on floodplain ordinances

Goal 5: Objective 5.3 - OK

Goal 5: Objective 5.4

Line 13 – educate public on their responsibility to mitigate flooding

Line 17 – educate public on need to limit development in floodplain

Line 23 – Continue to provide

Goal 5: Objective 5.5

Line 29 – spell out CRS

Line 32 & 37 – spell out NFIP

Line 35 – Map flood prone areas

Line 36 – Update floodplain maps

STATE OF MONTANA PDM PLAN UPDATE - STAKEHOLDER PLAN REVIEW MEETING
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Goal 5: Objective 5.6 – OK
Line 48 – add “state” dams and levees

Goal 6: Objective 6.1-OK

Goal 6: Objective 6.2
Line 35 – reword “state to work with NWS and media to publicize” take out governor.

Goal 7: Objective 7.1
Call Jim Whaley on “improve support system reliability” at Prison and Lewistown Nursing Center
Line 10 – rework sentence regarding state-wide roofs

Goal 7: Objective 7.2
Line 18 – Educate the public on recognizing severe weather and weather safety.
Line 19 – Promote Skywarn weather spotter training class
Line 24 – reword “state to work with NWS and media to publicize” take out governor

Goal 8: Objective 8.1
Line 32 – take out “that have threat”
Line 39 – take out NWS/DHS Haz Collect. Utilize the emergency alert system for public notification...

Goal 8: Objective 8.2 - OK

Goal 8: Objective 8.3 - OK

Goal 9: Objective 9.1
Line 18 – change to “promote seismic review”
Line 23 – seismic “mitigation” techniques
Line 27 – reword “maintain aesthetics of historic buildings while implementing seismic retrofits”

Goal 9: Objective 9.2
Combine 33 & 34 – axe “work with public schools”
Line 38 – change to standard scale – delete local government

Goal 9: Objective 9.3
Line 7 – misspelling on earthquake
Lines 10 & 12 – omit Tier 1
Line 19 – Omit
Line 35 – misspelling - was should be “as”
Line 43 – “o” instead of “a” in capital. take out harden under-designed – add retrofit
Line 48 – take out to ensure protection of developmental disabled clients

Goal 9: Objective 9.4
Line 20 – take out to ensure protection of developmental disabled clients
Line 17 – change “dampening” to “mitigation”

STATE OF MONTANA PDM PLAN UPDATE - STAKEHOLDER PLAN REVIEW MEETING
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Goal 10: Objective 10.1 - OK

Goal 10: Objective 10.2 - OK

Goal 11: Objective 11.1 - OK

Goal 11: Objective 11.2 - OK

Goal 11: Objective 11.3 - OK

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results















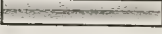







What jurisdiction type do you represent?

	Response Percent	Response Count
Federal <input type="checkbox"/>	8.2%	16
State <input type="checkbox"/>	12.8%	25
County <input type="checkbox"/>	41.0%	80
Tribal <input type="checkbox"/>	3.1%	6
Public Utility <input type="checkbox"/>	5.6%	11
General Public <input type="checkbox"/>	9.2%	18
Other (please specify) <input type="checkbox"/>	26.2%	51
answered question		195
skipped question		7

What County/Tribal Community do you represent or as a private citizen where do you live?

	Response Percent	Response Count
Blackfeet <input type="checkbox"/>	0.5%	1
Crow <input type="checkbox"/>	0.0%	0
Flathead <input type="checkbox"/>	1.6%	3
Fort Belknap <input type="checkbox"/>	0.0%	0
Fort Peck <input type="checkbox"/>	0.5%	1
Northern Cheyenne <input type="checkbox"/>	0.0%	0
Rocky Boy's <input type="checkbox"/>	1.1%	2
Beaverhead <input type="checkbox"/>	0.0%	0
Big Horn <input type="checkbox"/>	0.0%	0
Blaine <input type="checkbox"/>	0.0%	0
Broadwater <input type="checkbox"/>	0.5%	1
Carbon <input type="checkbox"/>	1.1%	2
Carter <input type="checkbox"/>	0.5%	1
Cascade <input type="checkbox"/>	2.7%	5
Chouteau <input type="checkbox"/>	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

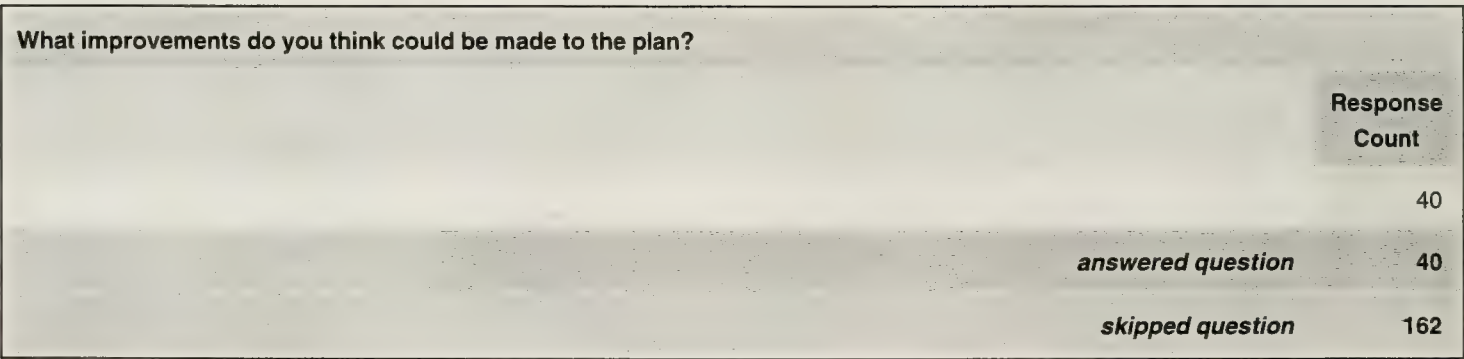
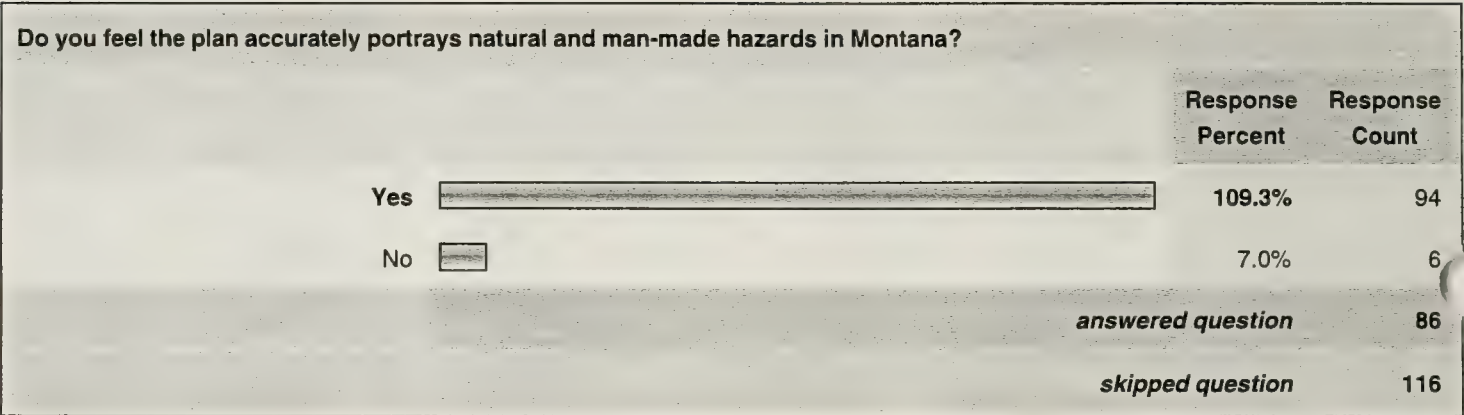
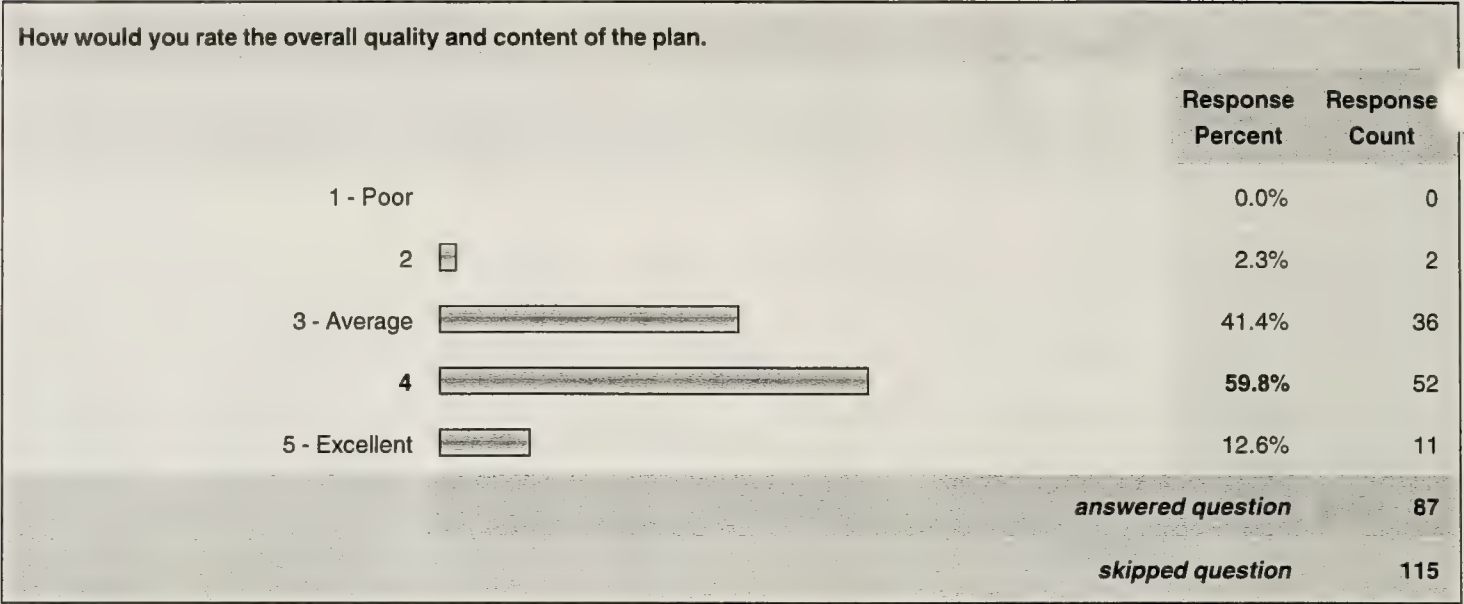
Custer		2.2%	4
Daniels		0.5%	1
Dawson		10.3%	19
Deer Lodge		0.5%	1
Fallon		0.5%	1
Fergus		2.2%	4
Flathead		1.1%	2
Gallatin		1.1%	2
Garfield		0.5%	1
Glacier		1.6%	3
Golden Valley		0.0%	0
Granite		0.0%	0
Hill		5.4%	10
Jefferson		1.6%	3
Judith Basin		0.5%	1
Lake		0.5%	1
Lewis And Clark		22.7%	42
Liberty		0.0%	0
Lincoln		0.5%	1
Madison		1.6%	3
McCone		0.5%	1
Meagher		0.0%	0
Mineral		0.0%	0
Missoula		4.9%	9
Musselshell		1.1%	2
Park		0.5%	1
Petroleum		0.5%	1
Phillips		0.0%	0
Pondera		0.0%	0
Powder River		0.0%	0
Powell		0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie		0.0%	0
Ravalli		8.7%	16
Richland		1.6%	3
Roosevelt		0.5%	1
Rosebud		0.0%	0
Sanders		0.0%	0
Sheridan		0.5%	1
Silver Bow		0.0%	0
Stillwater		0.5%	1
Sweet Grass		0.0%	0
Teton		0.0%	0
Toole		0.5%	1
Treasure		0.0%	0
Valley		1.1%	2
Wheatland		0.0%	0
Wibaux		0.5%	1
Yellowstone		10.3%	19
Other		6.0%	11
answered question			185
skipped question			17

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.




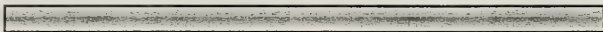

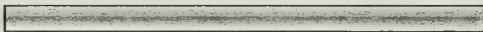
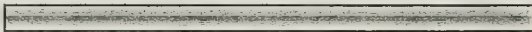
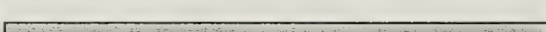

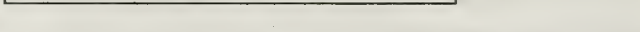
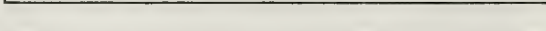
	Response Percent	Response Count
Yes 	51.0%	103
No 	49.0%	99
answered question		202
skipped question		0



From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction. High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	18.1% (26)	47.9% (69)	34.0% (49)	2.16	144
Drought	60.1% (86)	30.1% (43)	9.8% (14)	1.50	143
Earthquake	33.8% (48)	24.6% (35)	41.5% (59)	2.08	142
Flooding/Dam Failure	36.1% (52)	40.3% (58)	23.6% (34)	1.88	144
Hazardous Material Incidents	39.6% (57)	50.0% (72)	10.4% (15)	1.71	144
Landslide	6.3% (9)	27.1% (39)	66.7% (96)	2.60	144
Terrorism/Violence	6.3% (9)	27.5% (39)	66.2% (94)	2.60	142
Thunderstorm Wind, Hail, and Tornadoes	54.5% (79)	40.7% (59)	4.8% (7)	1.50	145
Volcanic Eruption	0.7% (1)	11.9% (17)	87.4% (125)	2.87	143
Wildfire	75.7% (109)	18.8% (27)	5.6% (8)	1.30	144
Winter Storms/Avalanche	43.8% (63)	50.0% (72)	6.3% (9)	1.63	144
<i>answered question</i>					145
<i>skipped question</i>					57

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.

		Response Percent	Response Count
Communicable Disease		82.8%	72
Drought		82.8%	72
Earthquake		79.3%	69
Flooding/Dam Failure		83.9%	73
Hazardous Material Incidents		79.3%	69
Landslide		66.7%	58
Terrorism/Violence		73.6%	64
Thunderstorm Wind, Hail, and Tornadoes		75.9%	66
Volcanic Eruption		62.1%	54
Wildfire		88.5%	77
Winter Storms/Avalanche		75.9%	66
answered question			87
skipped question			115

Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=**highest** / 10=**lowest**):

	High			Medium			Low			Rating Average	
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	39.3% (44)	15.2% (17)	17.0% (19)	8.9% (10)	8.0% (9)	0.9% (1)	3.6% (4)	2.7% (3)	2.7% (3)	1.8% (2)	2.90
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	34.2% (39)	25.4% (29)	15.8% (18)	4.4% (5)	14.9% (17)	1.8% (2)	0.9% (1)	0.9% (1)	0.9% (1)	0.9% (1)	2.65
Reduce the Community Impacts of Wildland and Rangeland Fires	36.0% (41)	22.8% (26)	17.5% (20)	7.0% (8)	12.3% (14)	0.9% (1)	1.8% (2)	0.9% (1)	0.9% (1)	0.0% (0)	2.56
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	19.3% (22)	14.9% (17)	14.9% (17)	10.5% (12)	22.8% (26)	7.0% (8)	1.8% (2)	4.4% (5)	1.8% (2)	2.6% (3)	3.82
Minimize Economic Impacts of Drought	17.5% (20)	16.7% (19)	16.7% (19)	7.9% (9)	21.1% (24)	4.4% (5)	7.9% (9)	4.4% (5)	2.6% (3)	0.9% (1)	3.87
Reduce Impacts from Severe Summer Weather (thunderstorm and, hail, tornadoes)	11.5% (13)	12.4% (14)	18.6% (21)	6.2% (7)	27.4% (31)	6.2% (7)	6.2% (7)	8.0% (9)	3.5% (4)	0.0% (0)	4.30
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	13.2% (15)	14.0% (16)	19.3% (22)	12.3% (14)	21.1% (24)	7.0% (8)	6.1% (7)	3.5% (4)	2.6% (3)	0.9% (1)	3.99
Reduce Potential Earthquake Losses in Western Montana	10.7% (12)	14.3% (16)	12.5% (14)	8.9% (10)	17.9% (20)	0.0% (0)	8.0% (9)	9.8% (11)	2.7% (3)	15.2% (17)	5.13
Reduce Losses from Hazardous Material Incidents	16.5% (19)	13.9% (16)	20.9% (24)	10.4% (12)	16.5% (19)	6.1% (7)	1.7% (2)	5.2% (6)	5.2% (6)	3.5% (4)	4.03
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	5.3% (6)	10.6% (12)	15.0% (17)	8.8% (10)	24.8% (28)	3.5% (4)	6.2% (7)	9.7% (11)	8.8% (10)	7.1% (8)	5.24

answered question

skipped question

Please indicate any additional Goals you think should be added to the State Plan.

Response
Count

23

answered question

23

skipped question

179

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.

	High		Medium						Low		Rating Average
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	22.5% (23)	22.5% (23)	17.6% (18)	7.8% (8)	15.7% (16)	2.9% (3)	5.9% (6)	3.9% (4)	1.0% (1)	0.0% (0)	3.29
Conduct Level 1 HAZUS-MH analyses for all Montana counties	15.7% (16)	12.7% (13)	23.5% (24)	10.8% (11)	23.5% (24)	2.0% (2)	5.9% (6)	4.9% (5)	0.0% (0)	1.0% (1)	3.75
Improve Statewide HAZUS data	14.7% (15)	20.6% (21)	23.5% (24)	4.9% (5)	22.5% (23)	4.9% (5)	2.0% (2)	4.9% (5)	1.0% (1)	1.0% (1)	3.60
Determine GPS locations of all State buildings for detailed, non-public analysis	9.0% (9)	18.0% (18)	18.0% (18)	10.0% (10)	21.0% (21)	4.0% (4)	5.0% (5)	6.0% (6)	3.0% (3)	6.0% (6)	4.38
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	7.9% (8)	16.8% (17)	20.8% (21)	10.9% (11)	16.8% (17)	8.9% (9)	4.0% (4)	6.9% (7)	2.0% (2)	5.0% (5)	4.36
Promote earth science education of hazards in schools	14.1% (14)	10.1% (10)	12.1% (12)	21.2% (21)	22.2% (22)	1.0% (1)	7.1% (7)	3.0% (3)	2.0% (2)	7.1% (7)	4.35
Conduct a Statewide warning capability assessment	29.4% (30)	16.7% (17)	14.7% (15)	12.7% (13)	14.7% (15)	2.9% (3)	2.0% (2)	5.9% (6)	1.0% (1)	0.0% (0)	3.19
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	39.6% (40)	13.9% (14)	14.9% (15)	11.9% (12)	10.9% (11)	4.0% (4)	2.0% (2)	3.0% (3)	0.0% (0)	0.0% (0)	2.75
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	18.6% (19)	24.5% (25)	21.6% (22)	13.7% (14)	12.7% (13)	2.0% (2)	5.9% (6)	0.0% (0)	0.0% (0)	1.0% (1)	3.14
Increase the public awareness of hazards	28.7% (29)	24.8% (25)	17.8% (18)	9.9% (10)	11.9% (12)	1.0% (1)	3.0% (3)	1.0% (1)	1.0% (1)	1.0% (1)	2.84
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	35.3% (36)	11.8% (12)	20.6% (21)	8.8% (9)	11.8% (12)	2.9% (3)	2.9% (3)	2.9% (3)	0.0% (0)	2.9% (3)	3.06
Increase readiness for the protection of life and property during an event	41.6% (42)	19.8% (20)	14.9% (15)	9.9% (10)	7.9% (8)	2.0% (2)	2.0% (2)	1.0% (1)	0.0% (0)	1.0% (1)	2.49

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

20

answered question

20

skipped question

182

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High				Medium				Low		Rating Average	R
Continue outreach of mitigation project funding opportunities	31.0% (31)	18.0% (18)	25.0% (25)	7.0% (7)	15.0% (15)	0.0% (0)	1.0% (1)	2.0% (2)	1.0% (1)	0.0% (0)	2.77	
Provide technical assistance with the environmental review process	18.2% (18)	20.2% (20)	20.2% (20)	13.1% (13)	18.2% (18)	3.0% (3)	2.0% (2)	1.0% (1)	1.0% (1)	3.0% (3)	3.42	
Provide technical assistance for project development	22.8% (23)	16.8% (17)	20.8% (21)	13.9% (14)	20.8% (21)	2.0% (2)	0.0% (0)	2.0% (2)	1.0% (1)	0.0% (0)	3.15	
Create an electronic database of completed mitigation projects in Montana	13.9% (14)	13.9% (14)	14.9% (15)	11.9% (12)	21.8% (22)	6.9% (7)	4.0% (4)	5.9% (6)	3.0% (3)	4.0% (4)	4.26	
Increase the scope and participation of the State Hazard Mitigation Team	14.0% (14)	19.0% (19)	19.0% (19)	10.0% (10)	17.0% (17)	4.0% (4)	8.0% (8)	2.0% (2)	3.0% (3)	4.0% (4)	3.97	
Create a private advisory group for mitigation	11.9% (12)	11.9% (12)	14.9% (15)	10.9% (11)	15.8% (16)	6.9% (7)	6.9% (7)	7.9% (8)	3.0% (3)	9.9% (10)	4.82	
Streamline mitigation standards in state and/or local subdivision regulations	22.7% (22)	16.5% (16)	18.6% (18)	6.2% (6)	20.6% (20)	7.2% (7)	5.2% (5)	1.0% (1)	1.0% (1)	1.0% (1)	3.46	
Strengthen state and/or local building codes	24.8% (25)	17.8% (18)	17.8% (18)	6.9% (7)	8.9% (9)	6.9% (7)	5.0% (5)	5.0% (5)	3.0% (3)	4.0% (4)	3.68	
Require growth policies consider natural and man-made hazard	30.3% (30)	20.2% (20)	17.2% (17)	8.1% (8)	12.1% (12)	1.0% (1)	3.0% (3)	7.1% (7)	0.0% (0)	1.0% (1)	3.09	
Create a state funded grant program to assist with the 25% match for local governments	32.0% (32)	21.0% (21)	13.0% (13)	12.0% (12)	9.0% (9)	4.0% (4)	3.0% (3)	1.0% (1)	4.0% (4)	1.0% (1)	3.05	
Coordinate local plan development	21.2% (21)	24.2% (24)	18.2% (18)	11.1% (11)	16.2% (16)	3.0% (3)	2.0% (2)	2.0% (2)	1.0% (1)	1.0% (1)	3.17	
Provide technical assistance with												

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	29.7% (30)	10.9% (11)	27.7% (28)	10.9% (11)	11.9% (12)	3.0% (3)	2.0% (2)	2.0% (2)	1.0% (1)	1.0% (1)	3.04
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
										Response Count	
											10
answered question											10
skipped question											192

Goal: Mitigate the potential loss of life and property from flooding.											
	High		Medium				Low		Rating Average	R	
Develop and improve upon model floodplain ordinances for local governments	20.2% (19)	21.3% (20)	17.0% (16)	10.6% (10)	21.3% (20)	0.0% (0)	2.1% (2)	2.1% (2)	2.1% (2)	3.2% (3)	3.46
Develop mapping for unmapped flood prone areas	21.3% (20)	26.6% (25)	19.1% (18)	6.4% (6)	14.9% (14)	5.3% (5)	2.1% (2)	1.1% (1)	1.1% (1)	2.1% (2)	3.18
Update floodplain mapping of mapped areas	20.7% (19)	25.0% (23)	20.7% (19)	7.6% (7)	16.3% (15)	1.1% (1)	2.2% (2)	1.1% (1)	2.2% (2)	3.3% (3)	3.27
Establish a schedule for NFIP map reviews and updates	17.0% (16)	19.1% (18)	20.2% (19)	8.5% (8)	21.3% (20)	3.2% (3)	3.2% (3)	2.1% (2)	1.1% (1)	4.3% (4)	3.67
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	17.4% (16)	18.5% (17)	19.6% (18)	15.2% (14)	20.7% (19)	1.1% (1)	0.0% (0)	3.3% (3)	2.2% (2)	2.2% (2)	3.51
Increase the public awareness of flood mitigation	22.3% (21)	28.7% (27)	13.8% (13)	11.7% (11)	12.8% (12)	3.2% (3)	1.1% (1)	2.1% (2)	3.2% (3)	1.1% (1)	3.15
Reduce the number of current and future structures in the floodplain	38.7% (36)	14.0% (13)	18.3% (17)	4.3% (4)	12.9% (12)	6.5% (6)	0.0% (0)	2.2% (2)	0.0% (0)	3.2% (3)	2.91
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	24.7% (23)	16.1% (15)	25.8% (24)	9.7% (9)	12.9% (12)	4.3% (4)	4.3% (4)	1.1% (1)	1.1% (1)	0.0% (0)	3.12
Provide adequate warning of flooding events	40.4% (38)	23.4% (22)	17.0% (16)	7.4% (7)	7.4% (7)	0.0% (0)	2.1% (2)	0.0% (0)	1.1% (1)	1.1% (1)	2.40

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

8

answered question

8

skipped question

194

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium				Low		Rating Average	R
Reduce fuels in the wildland urban interface	55.3% (52)	7.4% (7)	18.1% (17)	2.1% (2)	11.7% (11)	2.1% (2)	0.0% (0)	1.1% (1)	0.0% (0)	2.1% (2)	2.34	
Reduce hazardous fuels in rangeland areas	31.2% (29)	15.1% (14)	20.4% (19)	8.6% (8)	10.8% (10)	3.2% (3)	2.2% (2)	2.2% (2)	3.2% (3)	3.2% (3)	3.24	
Accurately assess and address the current wildland urban interface problems at the subdivision level	43.6% (41)	14.9% (14)	18.1% (17)	6.4% (6)	9.6% (9)	3.2% (3)	0.0% (0)	1.1% (1)	0.0% (0)	3.2% (3)	2.61	
Enhance firefighting resources and improve firefighting capabilities	44.1% (41)	21.5% (20)	17.2% (16)	7.5% (7)	6.5% (6)	0.0% (0)	0.0% (0)	2.2% (2)	1.1% (1)	0.0% (0)	2.28	
Enhance community awareness of wildfires through education	44.7% (42)	23.4% (22)	8.5% (8)	10.6% (10)	6.4% (6)	1.1% (1)	1.1% (1)	1.1% (1)	2.1% (2)	1.1% (1)	2.44	
Enhance effectiveness of response and evacuation	36.6% (34)	21.5% (20)	17.2% (16)	9.7% (9)	6.5% (6)	3.2% (3)	3.2% (3)	0.0% (0)	2.2% (2)	0.0% (0)	2.63	
Establish mapping or record keeping practices to support fuel management strategies	27.7% (26)	16.0% (15)	19.1% (18)	9.6% (9)	16.0% (15)	2.1% (2)	3.2% (3)	1.1% (1)	0.0% (0)	5.3% (5)	3.32	
Minimize human-caused ignition sources in fire-prone areas	38.7% (36)	24.7% (23)	12.9% (12)	3.2% (3)	10.8% (10)	2.2% (2)	3.2% (3)	1.1% (1)	0.0% (0)	3.2% (3)	2.70	
Centralize fire history documentation	17.2% (16)	20.4% (19)	12.9% (12)	14.0% (13)	16.1% (15)	5.4% (5)	3.2% (3)	2.2% (2)	1.1% (1)	7.5% (7)	3.90	
Develop a consistent Statewide fire risk assessment system	21.7% (20)	31.5% (29)	15.2% (14)	10.9% (10)	8.7% (8)	2.2% (2)	2.2% (2)	3.3% (3)	1.1% (1)	3.3% (3)	3.14	
Encourage sustainable growth in wildland fire hazard areas	24.7% (23)	22.6% (21)	7.5% (7)	9.7% (9)	14.0% (13)	4.3% (4)	3.2% (3)	4.3% (4)	2.2% (2)	7.5% (7)	3.78	

	answered question
	skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.		Response Count
		13
	answered question	13
	skipped question	189

Goal: Reduce potential earthquake losses in Western Montana.											
	High		Medium				Low			Rating Average	
Goal: Reduce potential earthquake losses in Western Montana.	18.0% (16)	18.0% (16)	13.5% (12)	6.7% (6)	21.3% (19)	6.7% (6)	4.5% (4)	0.0% (0)	0.0% (0)	11.2% (10)	4.12
Provide greater enforcement of current building codes	27.5% (25)	17.6% (16)	19.8% (18)	4.4% (4)	14.3% (13)	1.1% (1)	5.5% (5)	1.1% (1)	0.0% (0)	8.8% (8)	3.53
Develop model seismic building codes	16.5% (15)	22.0% (20)	20.9% (19)	2.2% (2)	19.8% (18)	2.2% (2)	5.5% (5)	2.2% (2)	0.0% (0)	8.8% (8)	3.88
Create stronger building standards for critical facilities and structures housing vulnerable populations	34.8% (31)	15.7% (14)	16.9% (15)	3.4% (3)	13.5% (12)	2.2% (2)	3.4% (3)	1.1% (1)	0.0% (0)	9.0% (8)	3.34
Require earthquake drills in schools in Western Montana	31.1% (28)	11.1% (10)	17.8% (16)	11.1% (10)	15.6% (14)	1.1% (1)	2.2% (2)	0.0% (0)	1.1% (1)	8.9% (8)	3.50
Expand and upgrade earthquake monitoring network and reporting capabilities	20.2% (18)	16.9% (15)	19.1% (17)	11.2% (10)	16.9% (15)	3.4% (3)	4.5% (4)	1.1% (1)	0.0% (0)	6.7% (6)	3.69
Continue "Earthquake Preparedness Month" outreach activities during the month of October	20.0% (18)	18.9% (17)	14.4% (13)	8.9% (8)	18.9% (17)	2.2% (2)	3.3% (3)	1.1% (1)	2.2% (2)	10.0% (9)	3.97
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	15.7% (14)	16.9% (15)	20.2% (18)	10.1% (9)	19.1% (17)	2.2% (2)	5.6% (5)	0.0% (0)	1.1% (1)	9.0% (8)	3.99
Seismically retrofit existing critical facilities and government assets	21.6% (19)	19.3% (17)	18.2% (16)	4.5% (4)	17.0% (15)	5.7% (5)	4.5% (4)	0.0% (0)	0.0% (0)	9.1% (8)	3.75
answered question											

Response
Count

7

answered question

7

skipped question

195

High

Medium

Low

**Rating
Average**

R

20.9%	15.4%	19.8%	8.8%	23.1%	2.2%	3.3%	1.1%	1.1%	4.4%
(19)	(14)	(18)	(8)	(21)	(2)	(3)	(1)	(1)	(4)

3.60

24.2%	16.5%	17.6%	6.6%	19.8%	4.4%	4.4%	2.2%	0.0%	4.4%
(22)	(15)	(16)	(6)	(18)	(4)	(4)	(2)	(0)	(4)

3.54

23.1%	14.3%	11.0%	12.1%	24.2%	7.7%	1.1%	1.1%	1.1%	4.4%
(21)	(13)	(10)	(11)	(22)	(7)	(1)	(1)	(1)	(4)

3.70

24.2%	16.5%	18.7%	14.3%	14.3%	1.1%	5.5%	1.1%	0.0%	4.4%
(22)	(15)	(17)	(13)	(13)	(1)	(5)	(1)	(0)	(4)

3.40

30.8%	24.2%	19.8%	3.3%	11.0%	3.3%	3.3%	2.2%	0.0%	2.2%
(28)	(22)	(18)	(3)	(10)	(3)	(3)	(2)	(0)	(2)

2.89

27.5%	25.3%	20.9%	4.4%	9.9%	3.3%	3.3%	2.2%	0.0%	3.3%
(25)	(23)	(19)	(4)	(9)	(3)	(3)	(2)	(0)	(3)

3.01

35.2%	24.2%	18.7%	5.5%	11.0%	2.2%	1.1%	2.2%	0.0%	0.0%
(32)	(22)	(17)	(5)	(10)	(2)	(1)	(2)	(0)	(0)

2.55

answered question

skipped question

	High			Medium			Low			Rating Average	R
Distribute winter driving and survival tips	26.1% (24)	19.6% (18)	16.3% (15)	6.5% (6)	21.7% (20)	4.3% (4)	1.1% (1)	2.2% (2)	0.0% (0)	2.2% (2)	3.22
Increase public awareness of winter weather hazards	31.5% (29)	16.3% (15)	21.7% (20)	8.7% (8)	13.0% (12)	4.3% (4)	2.2% (2)	0.0% (0)	1.1% (1)	1.1% (1)	2.91
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	16.3% (15)	17.4% (16)	22.8% (21)	8.7% (8)	21.7% (20)	1.1% (1)	2.2% (2)	1.1% (1)	1.1% (1)	7.6% (7)	3.79
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	37.0% (34)	25.0% (23)	20.7% (19)	4.3% (4)	7.6% (7)	1.1% (1)	2.2% (2)	0.0% (0)	1.1% (1)	1.1% (1)	2.47
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	18.5% (17)	20.7% (19)	17.4% (16)	12.0% (11)	20.7% (19)	3.3% (3)	3.3% (3)	1.1% (1)	0.0% (0)	3.3% (3)	3.47

answered question

skipped question

	Response Count
	8
<i>answered question</i>	8
<i>skipped question</i>	155

Goal: Reduce impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)

	High			Medium			Low			Rating Average	R
Install safety film on critical facilities to prevent shattering glass.	12.0% (11)	14.1% (13)	22.8% (21)	12.0% (11)	20.7% (19)	6.5% (6)	3.3% (3)	0.0% (0)	1.1% (1)	7.6% (7)	4.08
Encourage development and enforcement of wind resistant buildings and construction codes	13.2% (12)	18.7% (17)	23.1% (21)	8.8% (8)	22.0% (20)	3.3% (3)	5.5% (5)	1.1% (1)	0.0% (0)	4.4% (4)	3.76
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	14.4% (13)	22.2% (20)	15.6% (14)	12.2% (11)	18.9% (17)	4.4% (4)	4.4% (4)	1.1% (1)	0.0% (0)	6.7% (6)	3.82

*answered question**skipped question*

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

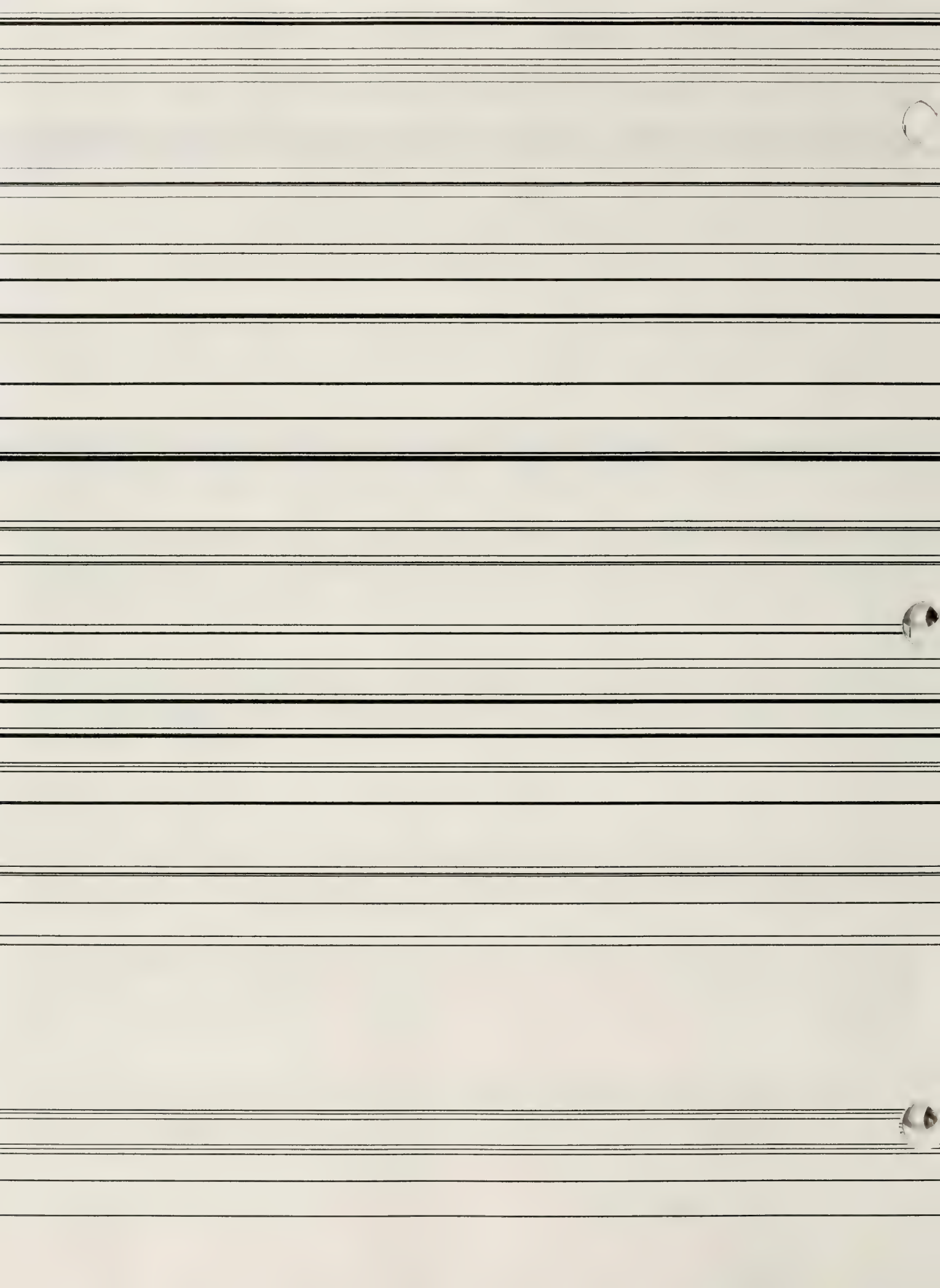
5

answered question

5

skipped question

197



Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High			Medium			Low			Rating Average	
Identify and map areas of greatest landslide and avalanche potential	12.1% (11)	8.8% (8)	14.3% (13)	9.9% (9)	26.4% (24)	9.9% (9)	1.1% (1)	3.3% (3)	0.0% (0)	14.3% (13)	4.80
Create a landslide/avalanche technical committee	3.3% (3)	7.7% (7)	12.1% (11)	15.4% (14)	16.5% (15)	13.2% (12)	5.5% (5)	6.6% (6)	0.0% (0)	19.8% (18)	5.67
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	17.6% (16)	11.0% (10)	16.5% (15)	11.0% (10)	13.2% (12)	9.9% (9)	5.5% (5)	3.3% (3)	1.1% (1)	11.0% (10)	4.43
Reduce losses from communicable disease	27.5% (25)	19.8% (18)	18.7% (17)	5.5% (5)	13.2% (12)	6.6% (6)	2.2% (2)	1.1% (1)	1.1% (1)	4.4% (4)	3.29
Increase awareness of risks from communicable disease	31.9% (29)	20.9% (19)	17.6% (16)	5.5% (5)	14.3% (13)	2.2% (2)	1.1% (1)	2.2% (2)	1.1% (1)	3.3% (3)	3.01

*answered question**skipped question*

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

3

answered question

3

skipped question

199

Goal: Reduce losses from Hazardous Material Incidents

	High				Medium				Low		Rating Average
Develop communication plan for hazardous material emergencies	45.6% (41)	20.0% (18)	15.6% (14)	3.3% (3)	11.1% (10)	2.2% (2)	1.1% (1)	0.0% (0)	1.1% (1)	0.0% (0)	2.32
Enhance information capability on types of hazardous materials traveling transportation routes	33.3% (30)	27.8% (25)	11.1% (10)	7.8% (7)	13.3% (12)	1.1% (1)	2.2% (2)	1.1% (1)	1.1% (1)	1.1% (1)	2.72
Provide hazardous material training to emergency responders	47.3% (43)	26.4% (24)	9.9% (9)	6.6% (6)	6.6% (6)	0.0% (0)	2.2% (2)	0.0% (0)	1.1% (1)	0.0% (0)	2.14
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	41.8% (38)	25.3% (23)	11.0% (10)	12.1% (11)	6.6% (6)	0.0% (0)	1.1% (1)	0.0% (0)	0.0% (0)	2.2% (2)	2.36

*answered question**skipped question*

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Responses
Count

5

answered question

5

skipped question

197





Other Jurisdictions Resonding to Survey















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Comment Text		Response Date
 Find	1. fire district	Wed, 6/20/07 9:30 AM
 Find	2. Fire Service	Tue, 6/19/07 3:19 PM
 Find	3. Red Cross	Wed, 6/6/07 7:28 PM
 Find	4. City of Helena	Wed, 6/6/07 2:40 PM
 Find	5. American Red Cross of Montana	Wed, 6/6/07 1:12 PM
 Find	6. Private Higher Education	Wed, 6/6/07 7:29 AM
 Find	7. City	Wed, 6/6/07 7:20 AM
 Find	8. USFS and CERT	Wed, 6/6/07 6:01 AM
 Find	9. Blue Cross Blue Shield of Montana	Tue, 6/5/07 2:16 PM
 Find	10. city	Tue, 6/5/07 12:47 PM
 Find	11. Univeristy	Tue, 6/5/07 12:44 PM
 Find	12. test	Tue, 6/5/07 9:21 AM
 Find	13. GLENDIVE MEDICAL CENTER	Fri, 6/1/07 10:27 AM
 Find	14. Red Cross	Tue, 5/29/07 3:00 PM
 Find	15. City fire and EMS	Tue, 5/29/07 7:10 AM
 Find	16. City fire and EMS	Tue, 5/29/07 7:08 AM
 Find	17. Oil Field / Amateur Radio	Tue, 5/29/07 6:38 AM
 Find	18. City of GLendive council president	Sun, 5/27/07 5:42 PM
 Find	19. FEMA	Fri, 5/25/07 1:43 PM
 Find	20. Human Services	Fri, 5/25/07 12:38 PM
 Find	21. City of Helena	Fri, 5/25/07 11:27 AM
 Find	22. City	Fri, 5/25/07 10:39 AM
 Find	23. Airport Authority	Fri, 5/25/07 8:59 AM
 Find	24. industry	Fri, 5/25/07 8:59 AM
 Find	25. Private Business	Fri, 5/25/07 8:09 AM
 Find	26. Local Fier Dept	Fri, 5/25/07 6:31 AM
 Find	27. Univeersity system	Thu, 5/24/07 5:36 PM
 Find	28. Media	Thu, 5/24/07 3:19 PM
 Find	29. American Red Cross-volunteer	Thu, 5/24/07 1:31 PM
 Find	30. city	Thu, 5/24/07 12:31 PM

 Find	31. American Red Cross	Thu, 5/24/07 10:59 AM
 Find	32. local gov't: fire district	Thu, 5/24/07 10:45 AM
 Find	33. City	Thu, 5/24/07 10:44 AM
 Find	34. City	Thu, 5/24/07 10:23 AM
 Find	35. Volunteer Ambulance Supervisor	Thu, 5/24/07 10:12 AM
 Find	36. City of Billings	Thu, 5/24/07 8:46 AM
 Find	37. private industry	Thu, 5/24/07 8:16 AM
 Find	38. Private Utility	Thu, 5/24/07 8:07 AM
 Find	39. municipal	Thu, 5/24/07 6:40 AM
 Find	40. BNSF Railway	Thu, 5/24/07 5:57 AM
 Find	41. municipal	Wed, 5/23/07 5:29 PM
 Find	42. City	Wed, 5/23/07 5:01 PM
 Find	43. Municipality	Wed, 5/23/07 3:44 PM
 Find	44. other	Wed, 5/23/07 3:36 PM
 Find	45. non profit electric coop	Wed, 5/23/07 2:27 PM
 Find	46. City	Wed, 5/23/07 2:22 PM
 Find	47. City limits of Glendive	Wed, 5/23/07 2:08 PM
 Find	48. Private hospital	Wed, 5/23/07 1:57 PM
 Find	49. University	Wed, 5/23/07 1:41 PM
 Find	50. University	Wed, 5/23/07 1:29 PM

250 responses per page

Suggested Improvements to State Plan

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



















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

Jump To: 1

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	Comment Text	Response Date
 Find	1. Better priority setting based on risks involved	Tue, 7/3/07 4:05 PM
 Find	2. It is not a plan. It only identified hazards to be mitigated. There is no assignment of tasks to specific agencies. The report does not include local fire districts as first responders or mitigators (inclusion of state organizations such as the Fire Chiefs Association or FF Association does not count; these groups do not represent the chiefs or firefighters.)	Wed, 6/20/07 9:32 AM
 Find	3. update weather information	Thu, 6/7/07 1:31 PM
 Find	4. Maybe change some of the rankings	Wed, 6/6/07 2:40 PM
 Find	5. Mitigations should link to counties by providing state support to them for their mitigation efforts. All disasters are local.	Tue, 6/5/07 8:47 PM
 Find	6. Dedicate a chapter to programmatic awareness/publicity efforts for the plan and related activities.	Tue, 6/5/07 2:22 PM
 Find	7. Update hazard maps with current data.	Tue, 6/5/07 2:13 PM
 Find	8. A section that would be mitigation project oriented....."what, as a State, we are going to do to address the risk from the hazards". Local govt's are required to do that. It is obvious that the State, as a land manager for example needs to be addressing the wildland fuel hazard. The Fish, Wildlife & Parks definitely needs to get into the mitigation game in their parks, day use facilities, etc. Even the MDOT has areas that can use some fuel hazard reduction. They also can reference a commitment to mitigation of the hazards that are identified by providing funding to address those hazards.	Tue, 6/5/07 1:54 PM
 Find	9. Pandemic response up-grade for communicable Vector response up-grade	Tue, 6/5/07 12:56 PM
 Find	10. none	Tue, 6/5/07 9:35 AM
 Find	11. liugjlgf	Tue, 6/5/07 9:25 AM
 Find	12. test	Tue, 6/5/07 9:21 AM
 Find	13. none	Tue, 6/5/07 8:36 AM
 Find	14. none	Tue, 6/5/07 8:26 AM
 Find	15. no ideas at this time	Fri, 6/1/07 2:45 PM
 Find	16. no ideas at this time.	Fri, 6/1/07 2:45 PM
 Find	17. no ideas at this time	Fri, 6/1/07 2:44 PM
 Find	18. a	Fri, 6/1/07 10:37 AM
 Find	19. No specific suggestions.	Wed, 5/30/07 12:24 PM
 Find	20. Simplify it. It's too many volumes to be useful right now.	Wed, 5/30/07 10:29 AM
 Find	21. none.	Tue, 5/29/07 3:01 PM
 Find	22. none.	Tue, 5/29/07 3:00 PM
 Find	23. I think there should be more expericence involved. Developed by people who have been the and done it.	Fri, 5/25/07 1:44 PM

 Find	24. Continue to work with local jurisdictions while updating the plan	Thu, 5/24/07 4:38 PM
 Find	25. More thorough and knowledgeable focus on impacts to food safety and supply issues.	Thu, 5/24/07 1:28 PM
 Find	26. It only identifies risks and doesn't really address mitigation. There is NO coverage of response. Local fire districts are not included in response planning.	Thu, 5/24/07 10:48 AM
 Find	27. 1. Increased emphasis on working County and State working more closely with your Federal counterparts that are already trained and experienced in the different areas of Hazards utilize the expertise and federal funding. 2. Increased emphasis on mitigation measure that can be taken by the general public in advance - and increase awareness among our state and federal congressional staff - for funding of mitigation.	Thu, 5/24/07 10:25 AM
 Find	28. Personally, I feel that lack of adequate all season roads in my county is a hazard. Not only does it cause accidents, but prohibits response in some cases. I feel this is a need in this community.	Thu, 5/24/07 9:03 AM
 Find	29. Some hazards identified in specific portions of the state may be over emphasized in terms of the real threat they create in a given jurisdiction. Also, some very specific threats are large in magnitude if they occur, but almost never occur or have a very low probability of occurring. For example, failure of the Yellowtail Dam in Big Horn County, or devastating earthquake in the City of Billings.	Thu, 5/24/07 8:50 AM
 Find	30. The update that is possible only because all of the counties and tribes have finally completed or nearly completed their local plans.	Thu, 5/24/07 8:07 AM
 Find	31. There needs to be a greater active roll on the part of the State and Federal governments along the northern border of the state. Most departments responding to an "All Hazards" incident are not prepared. Both equipment and or training. Again most departments do very well on the fire and MVA fronts but budgets will not allow for HAZMAT equipment beyond a Level-B at best.	Thu, 5/24/07 7:08 AM
 Find	32. Attended the meeting in Custer County and appreciated the effort to update, confirm and amend our plan	Thu, 5/24/07 7:03 AM
 Find	33. None	Thu, 5/24/07 6:38 AM
 Find	34. Updates with recent hazardous events since the plan was last finished. Listing of mitigation activities that have been completed throughout the state. Reevaluate existing mitigation strategies and add new ones to the list. A section could be added on current StormReady communities and counties in the state. There are a lot of them that have done this. http://www.weather.gov/stormready	Thu, 5/24/07 6:32 AM
 Find	35. none	Thu, 5/24/07 5:34 AM
 Find	36. add infectious disease (pandemic influenza, smallpox, etc) as a natural hazard. Hazard Table. When assigning a value to each hazard based on potential to impact people & property, list frequency on a different table so not to artificially elevate one hazard over another	Wed, 5/23/07 8:34 PM
 Find	37. None. I feel that a plan should be loose enough so that one can deviate from the plan if the situation warrants without worrying about liability issues.	Wed, 5/23/07 6:19 PM
 Find	38. Additional contact information for local governmental agencies.	Wed, 5/23/07 3:44 PM
 Find	39. /	Wed, 5/23/07 3:36 PM
 Find	40. More detailed assessments of hazards at the local (county) level will change the portrayed hazards for the state.	Wed, 5/23/07 2:57 PM
 Find	41. In my opinion the ranking of hazards is inaccurate. The problem lies with probability (frequency) vs. severity (loss potential) and what individuals consider to be a "risk". I think it would be helpful to provide a clear definition or standardized guidelines in order to get more	Wed, 5/23/07 2:45 PM

accurate feedback. I also have some concerns with the background or expertise of those providing input on the plan. From what I have witnessed, input from individuals with no experience in emergency response or hazard mitigation carries the same weight as input from local fire chiefs and other public safety officials. In my opinion, this impacts the validity of the hazards and risk rankings.

- | | | |
|---|--|----------------------|
|  Find | 42. At this time I don't know of any improvements but if I come up with any I'll let our local DES know. | Wed, 5/23/07 2:27 PM |
|  Find | 43. dividing the hazards by region of the state rather than an overall state plan. Also, looking at all the PDM plans from the counties and working the state plan from the county plans. | Wed, 5/23/07 1:57 PM |
|  Find | 44. Ag hazards have a great deal of effect on the citizens of Montana and the economy and should be addressed. | Wed, 5/23/07 1:55 PM |

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**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Project Scoring Sheets

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.1: Increase readiness for the protection of life and property during an event.

PROJECT: At the State's central computer complex in Helena, install appropriate fire suppression systems to maintain data and ensure continuity of operations.

Category	Score
Cost	5
Population Benefit	1
Property Benefit	10
Economic Benefit	10
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	41

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards	
Objective 1.1: Increase readiness for the protection of life and property during an event.	
PROJECT: Within the Capital complex in Helena, install fire suppression systems in document archives and libraries (without adequate suppression) to avoid loss of irreplaceable documents.	
Category	Score
Cost	3
Population Benefit	1
Property Benefit	10
Economic Benefit	8
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	37

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.2: Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

PROJECT: Work with local jurisdictions to integrate procedures in the Statewide All-Hazard Emergency Alert System (EAS) plan into their local emergency plans.

Category	Score
Cost	3
Population Benefit	10
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	5
Potential for Repetitive Loss Reduction	5
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	36

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.3: Increase the public awareness of hazards.

PROJECT: Educate all public school students in preparedness activities including the American Red Cross "Masters of Disaster" curriculum.

Category	Score
Cost	5
Population Benefit	5
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	5
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	29

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

PROJECT: Provide easily accessible GIS databases of assets, populations, and hazard information to emergency managers.

Category	Score
Cost	8
Population Benefit	1
Property Benefit	3
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	26

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

PROJECT: Determine GPS locations of all State buildings for detailed, non-public analysis.

Category	Score
Cost	5
Population Benefit	1
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	30

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.4: Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

PROJECT: Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes.

Category	Score
Cost	5
Population Benefit	1
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	30

Goal 1: Maximize the Use of Mitigation Actions that Prevent Losses from all Hazards

Objective 1.5: Increase readiness for the protection of prehistoric and historic cultural resources during an event.

PROJECT: Plan for the protection of historic and cultural properties in hazard prone areas.

Category	Score
Cost	8
Vulnerability of Community	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
TOTAL	13

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

PROJECT: Provide technical assistance to local governments.

Category	Score
Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	39

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

PROJECT: Continue mitigation planning training courses.

Category	Score
Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	39

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

PROJECT: Coordinate Local PDM Plan updates.

Category	Score
Cost	9
Vulnerability of Community	5
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
TOTAL	16

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

PROJECT: Assist local jurisdictions fill out FEMA PDM-C grant applications.

Category	Score
Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	39

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

PROJECT: Assist local DES coordinators develop plan of action to complete their more doable mitigation projects.

Category	Score
Cost	8
Vulnerability of Community	5
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
TOTAL	15

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.1: Support mitigation planning at all levels.

PROJECT: Develop standardized rating system for looking at risk, vulnerability and hazards for use as a template in local PDM Plan updates.

Category	Score
Cost	9
Vulnerability of Community	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
TOTAL	12

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities	
Objective 2.2: Promote mitigation through supportive legislation and funding.	
PROJECT: Create a State-funded grant program to assist with the 25 percent PDM-C match for local governments.	
Category	Score
Cost	7
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	3
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	36

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.2: Promote mitigation through supportive legislation and funding.

PROJECT: Ensure State programs receive adequate funding to engage in mitigation planning and project implementation.

Category	Score
Cost	7
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	3
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	36

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

PROJECT: Continue outreach of mitigation project funding opportunities.

Cost	9
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	40

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

PROJECT: Provide technical assistance with the environmental review process.

Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	39

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

PROJECT: Provide technical assistance for project development.

Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	39

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

PROJECT: Document mitigation successes.

Cost	10
Population Benefit	1
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	22

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

PROJECT: Further engage State agencies such as DMA, DOA, MDT, FWP and DNRC in the mitigation planning process.

Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	40

Goal 2: Increase the State's Capability to Provide and Assist Locals with Mitigation Opportunities

Objective 2.3: Coordinate and establish priorities for hazard mitigation projects at all levels in the State of Montana.

PROJECT: Increase the scope and participation of the State Hazard Mitigation Team to include establishing priorities for the state and ranking projects on an annual basis.

Cost	9
Population Benefit	1
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	1
TOTAL	21

Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires

Objective 3.1: Enhance firefighting resources and improve firefighting capabilities.

PROJECT: Support and fund a statewide Firesafe Montana organization that can gather, disseminate and assist counties and other political subdivisions with grant information, project development and operations.

Category	Score
Cost	8
Population Benefit	10
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	5
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	5
Potential Project Effectiveness and Sustainability	3
TOTAL	48

Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	
Objective 3.2: Reduce fuels in the WUI	
PROJECT: Address wildland fuel hazards on state property including parks, day-use facilities and highway rights-of-way.	
Category	Score
Cost	3
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	4
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	3
TOTAL	40

Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires**Objective 3.2: Reduce fuels in the WUI****PROJECT: At DNRC Forest Management Units statewide, expand units to provide risk reduction operations to reduce risk of complex events.**

Category	Score
Cost	3
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	4
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	3
TOTAL	40

Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires	
Objective 3.3: Enhance community awareness of wildfires through education.	
PROJECT: Promote public responsibility for defensible space in the WUI.	
Category	Score
Cost	9
Vulnerability of Community	5
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	5
TOTAL	20

Goal 3: Reduce the Community Impacts of Wildland and Rangeland Fires**Objective 3.4: Accurately assess and address the current WUI problems at the subdivision level.****PROJECT: Coordinate with federal and state land management agencies for fuel reduction.**

Category	Score
Cost	9
Vulnerability of Community	5
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	5
TOTAL	20

Goal 4: Minimize Economic Impacts of Drought**Objective 4.1: Identify water retention projects that could lessen the effects of drought****PROJECT: Explore water retention project on the Milk River in Hill County.**

Category	Score
Cost	9
Population Benefit	10
Property Benefit	3
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	4
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	4
TOTAL	40

Goal 4: Minimize Economic Impacts of Drought**Objective 4.3: Improve drought monitoring and assessments.****PROJECT: Continue to support the State Drought Advisory Committee.**

Category	Score
Cost	10
Vulnerability of Community	1
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
TOTAL	13

Goal 4: Minimize Economic Impacts of Drought	
Objective 4.3: Improve drought monitoring and assessments.	
PROJECT: Install Statewide drought monitoring stations.	
Category	Score
Cost	3
Population Benefit	1
Property Benefit	3
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	4
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	26

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	
Objective 5.1: Provide adequate warning of flooding events.	
PROJECT: Link critical information in real-time to dispatch centers.	
Category	Score
Cost	5
Population Benefit	10
Property Benefit	10
Economic Benefit	2
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	2
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	3
TOTAL	42

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding**Objective 5.1: Provide adequate warning of flooding events.****PROJECT: Provide planning assistance to local responders.**

Category	Score
Cost	8
Vulnerability of Community	5
Potential for Repetitive Loss Reduction	2
Potential to Mitigation Hazards to Future Development	2
TOTAL	17

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding**Objective 5.2: Reduce the number of current and future structures in the floodplain.****PROJECT: Encourage jurisdictions to pursue mitigation of repetitive loss structures or any severe repetitive loss properties identified in the future.**

Category	Score
Cost	8
Population Benefit	6
Property Benefit	10
Economic Benefit	1
Project Feasibility	3
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	5
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	42

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding**Objective 5.3: Prevent flooding of structures and infrastructure.****PROJECT: Upgrade bridges that inhibit water flow.**

Category	Score
Cost	2
Population Benefit	8
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	4
TOTAL	33

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding**Objective 5.4: Increase the public awareness of flood mitigation.****PROJECT: Continue to provide flood insurance education.**

Category	Score
Cost	9
Population Benefit	2
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	2
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	3
TOTAL	36

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	
Objective 5.5: Improve the effectiveness of flood insurance programs.	
PROJECT: Develop mapping for flood prone areas.	
Category	Score
Cost	5
Population Benefit	5
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	2
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	4
TOTAL	37

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding**Objective 5.5: Improve the effectiveness of flood insurance programs.****PROJECT: Update floodplain mapping.**

Category	Score
Cost	5
Population Benefit	5
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	2
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	4
TOTAL	37

Goal 5: Mitigate the Potential Loss of Life and Property from Flooding	
Objective 5.5: Improve the effectiveness of flood insurance programs.	
PROJECT: Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums.	
Category	Score
Cost	9
Population Benefit	5
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	2
Potential to Mitigation Hazards to Future Development	2
Potential Project Effectiveness and Sustainability	3
TOTAL	40

Goal 6: Reduce Impacts from Severe Winter Weather	
Objective 6.1: Increase community capabilities to mitigate winter weather hazards.	
PROJECT: Identify critical infrastructure vulnerable to extreme cold conditions.	
Category	Score
Cost	9
Population Benefit	5
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	4
TOTAL	39

Goal 6: Reduce Impacts from Severe Winter Weather	
Objective 6.2: Increase public awareness of winter weather hazards.	
PROJECT: Distribute winter driving and survival tips.	
Category	Score
Cost	9
Population Benefit	10
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	34

Goal 6: Reduce Impacts from Severe Winter Weather**Objective 6.2: Increase public awareness of winter weather hazards.****PROJECT: Promote winter survival kits for homes and cars.**

Category	Score
Cost	9
Population Benefit	10
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	4
TOTAL	35

Goal 6: Reduce Impacts from Severe Winter Weather	
Objective 6.2: Increase public awareness of winter weather hazards.	
PROJECT: Promote partnership with National Weather Service and media to publicize Winter Hazards Weather Awareness Week to help educate public on preparedness	
Category	Score
Cost	9
Population Benefit	10
Property Benefit	1
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	33

Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)

Objective 7.1: Increase community capabilities to mitigate summer weather hazards.

PROJECT: At the Montana Women's Prison in Billings, mitigate the structure against natural hazards to maintain security and operation.

Category	Score
Cost	8
Population Benefit	4
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	38

Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)

Objective 7.1: Increase community capabilities to mitigate summer weather hazards.

PROJECT: At the Montana Mental Health Nursing Care Center in Lewistown, mitigate the structure against natural hazards to maintain operation and meet medical needs.

Category	Score
Cost	8
Population Benefit	4
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	38

Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)

Objective 7.1: Increase community capabilities to mitigate summer weather hazards.

PROJECT: At the Pine Hills Youth Correctional Facility in Miles City, improve wind resistance of building roofs.

Category	Score
Cost	8
Population Benefit	4
Property Benefit	10
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	5
TOTAL	38

Goal 7: Reduce Impacts from Severe Summer Weather (Hail, Wind, Tornadoes)	
Objective 7.2: Increase public awareness of ways to mitigate summer weather hazards.	
PROJECT: Promote partnership with National Weather Service and media to publicize Severe Weather Awareness Week to help educate public on preparedness and what to do when the warnings are issued.	
Category	Score
Cost	9
Population Benefit	10
Property Benefit	1
Economic Benefit	1
Project Feasibility	5
Hazard Magnitude/Frequency	3
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	34

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.2: Educate the public in earthquake mitigation and readiness.****PROJECT: Expand and upgrade the earthquake monitoring network and information reporting capabilities.**

Category	Score
Cost	4
Population Benefit	10
Property Benefit	10
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	4
TOTAL	40

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.2: Educate the public in earthquake mitigation and readiness.****PROJECT: Continue "Earthquake Preparedness Month" outreach activities during the month of October.**

Category	Score
Cost	9
Population Benefit	10
Property Benefit	10
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	44

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	
Objective 9.2: Educate the public in earthquake mitigation and readiness.	
PROJECT: Continue presentations and distribution of earthquake awareness materials.	
Category	Score
Cost	9
Population Benefit	10
Property Benefit	10
Economic Benefit	3
Project Feasibility	5
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	44

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the MSU-Bozeman campus, seismically retrofit Leon Hall, an 11-story masonry veneer build with questionable veneer attachment to the frame.**

Category	Score
Cost	2
Population Benefit	5
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	29

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	
Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	
PROJECT: At the UM-Western campus in Dillon, stabilize Main Hall which was damaged from recent earthquakes.	
Category	Score
Cost	2
Population Benefit	3
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	27

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: Within the State government complex in Helena, construct and relocate the central commuters to a seismically-hardened building with adequate services to ensure continuity of operation.**

Category	Score
Cost	1
Population Benefit	3
Property Benefit	10
Economic Benefit	4
Project Feasibility	5
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	30

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the State Prison complex in Deer Lodge, improve support systems and implement minimal seismic upgrades to ensure security and maintain operation.**

Category	Score
Cost	2
Population Benefit	3
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	27

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the Montana State Hospital in Warm Springs, seismically harden buildings and expand support systems to assure continued operation and meet medical needs.**

Category	Score
Cost	2
Population Benefit	3
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	27

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas

Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.

PROJECT: At the UM-Western campus in Dillon, seismically harden buildings with emphasis to heating plant, refuge buildings and housing and brace utilities distribution. Campus has potential to be upgraded to operate as secure refuge.

Category	Score
Cost	2
Population Benefit	8
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	32

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	
Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	
PROJECT: At the MSU-Bozeman campus, seismically harden buildings with emphasis to the heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system.	
Category	Score
Cost	1
Population Benefit	10
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	33

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the Montana Tech of the UM campus in Butte, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing.**

Category	Score
Cost	1
Population Benefit	8
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	30

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the Montana Tech of the UM campus in Butte, relocate the seismic monitoring center to a stable building.**

Category	Score
Cost	5
Population Benefit	1
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	28

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the Capitol Complex in Helena, seismically retrofit buildings to mitigate loss.**

Category	Score
Cost	1
Population Benefit	10
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	33

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	
Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.	
PROJECT: At the UM-Missoula campus, seismically harden buildings with emphasis to heating plant, critical research buildings, refuge buildings and housing including the addition of a redundant point source to central utility distribution system.	
Category	Score
Cost	1
Population Benefit	10
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	32

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.3: Seismically retrofit existing critical facilities/infrastructure and government assets.****PROJECT: At the Montana Developmental Center in Boulder, implement seismic upgrades.**

Category	Score
Cost	2
Population Benefit	3
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	27

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas**Objective 9.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards****PROJECT: At the State Information Technology Center in Helena, obtain earthquake mitigation devises for data center equipment to provide protection during non-catastrophic earthquakes.**

Category	Score
Cost	7
Population Benefit	2
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	31

Goal 9: Reduce Potential Earthquake Losses in Seismically Prone Areas	
Objective 9.4: Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards	
PROJECT: At the Montana Developmental Center in Boulder, implement non-structural projects.	
Category	Score
Cost	7
Population Benefit	3
Property Benefit	10
Economic Benefit	1
Project Feasibility	4
Hazard Magnitude/Frequency	2
Potential for Repetitive Loss Reduction	1
Potential to Mitigation Hazards to Future Development	1
Potential Project Effectiveness and Sustainability	3
TOTAL	32

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

APPENDIX B

DISTRICT 1 DOCUMENTATION

Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Projects

NORTHWEST MONTANA JURISDICTIONS

Deer Lodge County
Flathead County
Flathead Reservation
Granite County
Lake County
Lincoln County
Mineral County
Missoula County
Powell County
Ravalli County
Sanders County
Silver Bow County

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/13/07 Courthouse Rm 201

LOCATION: MISSOULA - DISTRICT 1

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digirindakis	Tetra Tech	NA	daphne.digirindakis@tetratech.com
KENT ARWOOD	MT - DCS	NA	kentwood@mt.gov
LARRY B. AKERS	TETRA TECH	NA	alpha6@ixi.net
Jay Shaffer	MISSOULA CITY AIRPORT AUTH.	N/A	jshaffer@missoulaport.org
Art Robinson	MT DNRC - Dam Safety	300	arobinson@mt.gov
Byron Van Alstou	Arlee Fire Department	54	KV3051@blackfoot.net
Lawn Hendrix	Rowell County	102	lhendrix@rowellcounty.mt.gov
Patrick D'Herren	Msla Co Rural Initiatives	1	Pdherren@co.missoula.mt.us
Leanne Vreeland	Msla City Health Dept	1	vreeland@health.missoula.mt.us
CURT BELTS	MISSOULA RURAL FIRE DIST	1	cbelts@MRFDFire.org
Jean Curtiss	Missoula County Commission		jean@missoula.mt.us

Meeting State Time: 9:00 AM

Meeting End Time: 11:00 AM

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/13/07 Courthouse 201

LOCATION: Missoula - District #1

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Colleen Torne	Red Cross - Program Specialist	0	torne@usa.redcross.org
Joe Rehner	Red Cross - VISTA volunteer	0	Rehner@usa.redcross.org
Peter Felsch	Warning Coordination Met/MS	0	peter.felsch@nrc.gov
Deb Ogden	9-1-1 / Manager	112	dagden@missoula.mt.us
Jason Diehl	Missoula City Fire Dept	0	jdiehl@ci.missoula.mt.us
Barbara Diehl	Missoula	0	
Deese Sackey	Food + Beverage Vendor	1 hr	343-4631
Dick Lewis	Missoula P.D.	1 Block	dlewis@CI.Missoula.mt.us
Eddie D. Patterson, May	The Salvation Army (C.O.)	1 Block	Eddie-Patterson@usva.salvationarmy.org
Bob Reid	Missoula County DES	N/A	breid@co.missoula.mt.us

Meeting State Time: 9:00 am

Meeting End Time: 11:00 am

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/13/07

LOCATION: Polson District 1

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digrindakis	Tetra Tech	300	daphne.digrindakis@tetra-tech.com
KENT ATWOOD	MT-DES	300	Kentwood@mt.gov
LARRY B. AIKERS	TETRA TECH	300	alpha6@ixi.net
DARRELL STAFFORD	LIB/TECH DES	400	swampet@netnet.net
Carla Danielson	Lib/Toole DES	400	rats-brat@hotmail.com
SALLY BUCKNELL	JEFF CO DES	300	
Linda Connor	Fort Peck - Roosevelt Co.		
W. Fred Lambert	Fort Peck - Roosevelt Co.		
DICK CHAREST	AMERICAN RED CROSS PIA/R	232	CHARSTO@USA. RED CROSS. ORG
Robert DesRosier	Blackfoot Table DES	300	rdrosier@3rivers.net
MARC McEILL	LINCOLN CO.	300	LMCEMILL@LINCOLN.CO.ORG
PAUL SPENGLER	LAC CO DES	360	pspengler@

Meeting State Time: 1046

Meeting End Time:

646 pm

COLEWIS - CLARK.
mt.us

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/13/07

LOCATION: Pelson

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
WILDA VAN DER SANDE	ASVP / DES	2	888-2832
WAYNE VANDER SANDE	ASVP / DES	2	883-2832
Chris Spencer	Ft. Belknap Tribes	400	353-3221
CLETE GREGORY	Pondera Co / Dp DES	550	271-3138
Shirley Lan Z	MT DES	340	841-3711
Richard H. Buehous	Liberty County	320	759-5111
Ed Auher	Big Horn	920	665-1731
BART BONNEY	GRANITE Co. DES	340	563-3266
Jolene Jacobson	DESKT DES	20	
Stephen Stanley	Lehn CO DES	15	887-7257
Mark Teck	Flathead County	100	758-5558
MARA McGill	Lincoln Co.	300	293-6295 / KENNA@libby.net

Meeting State Time: 1646

Meeting End Time: 646 pm

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/13/07

LOCATION: Polson, District 1

[illegible]

Meeting State Time: 1646

Meeting End Time: 6:46 pm

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Tuesday, March 13, 2007

Time: 9:09 am – 11:00 am

Place: Room 201 of the Missoula County Courthouse, Montana

Meeting Attendance:

Jay Shaffer, Missoula County Airport Authority
Art Robinson, MT DNRC Dam Safety
Byron Van Alsten, Arlee Fire Department
Laura Hendrix, Ravalli County
Patrick O'Herren, Missoula County Rural Initiatives
Leanne Vreeland, Missoula County Health Department
Curt Belts, Missoula Rural Fire District
Jean Curtiss, Missoula County Commissioner
Colleen Tone, Red Cross Program Specialist
Joe Brehm, Red Cross VISTA Volunteer
Peter Felsch, Warning Coordinator MET/NWS
Deb Ogden, 911- Manager
Jason Diehl, Missoula City Fire Department
Barbara Gram, Missoula County Commissioner
Chase Sackey, Food and Beverage Vender
Dick Lewis, Missoula Police Department
Major Eddie D. Patterson, The Salvation Army (CO)
Bob Reid, Missoula County DES
Kent Atwood, State of Montana – DES
Larry Akers, Contractor
Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 1

Meeting Discussion on Hazards Affecting District 1

Possible addition of Communicable Disease hazard. It was noted that bird flu, measles, SARS, livestock diseases, etc. could impact the county's economy for up to six months. If people operating the infrastructure were stricken by disease, services could fail.

ASSESSMENT OF HAZARDS – DISTRICT 1

Drought

Lincoln – Not Assessed
Flathead – Low
Sanders – Low
Lake – Low

Mineral – Not Assessed
Missoula – Change from Not Assessed to High
Ravalli – Not Assessed
Granite – Medium
Powell – Low
Deer Lodge – High
Silver Bow – Medium
Flathead Reservation – Low

Missoula County requested an upgrade to high risk due to the increasing number of subdivisions, low snow packs and climate change. Wildfire, drought and flooding were named as the top three hazards in Missoula County.

Earthquake

Lincoln – Low
Flathead – Low
Sanders – Low
Lake – Low
Mineral – Low
Missoula – Change from Low to Medium
Ravalli – Low
Granite – Medium
Powell – Low
Deer Lodge – Low
Silver Bow – Low
Flathead Reservation - Low

Missoula County noted that their risk for earthquake is elevated due to their position on a fault line. The County also expressed concern over possibly failure of the Jocko lakes earthen dams. Additionally, the County is the economic center for the area and critical structures (like hospitals) need to be protected from seismic activity.

Flood

Lincoln – Medium
Flathead – Medium
Sanders – Low
Lake – Low
Mineral – Medium
Missoula – Change from Medium to High
Ravalli – Change from Medium to High
Granite – High
Powell – High
Deer Lodge – High
Silver Bow – Medium
Flathead Reservation – Low

Missoula County felt this hazard should be upgraded to high as global warming will probably change the climate. Ravalli County also requested their risk be upgraded to high as there are a large number of high hazard dams in the county.

Hazardous Material Incident

Lincoln – Medium
Flathead – Medium
Sanders – Not Assessed
Lake – Medium
Mineral – Medium
Missoula – Change from Not Assessed to High
Ravalli – Change from Not Assessed to Medium
Granite – Medium
Powell – Low
Deer Lodge – Medium
Silver Bow – Medium
Flathead Reservation – Low

Missoula County requested this risk be upgraded to high as many trains and hazardous materials move through the county. An observation of hazmat placards on rail cars and interstate vehicles identified a rough count of eight per hour.

Ravalli noted that their risk for a Hazardous Material Incident should be upgraded to medium. The Rocky Mountain Laboratory is located in the county and about one train per week passes through the area. Arlington was also noted as a chokepoint.

Landslide

Lincoln – Low
Flathead – Low
Sanders – Not Assessed
Lake – Not Assessed
Mineral – Medium
Missoula – Medium
Ravalli – Medium
Granite – Low
Powell – Low
Deer Lodge – Low
Silver Bow – Low
Flathead Reservation – Not Assessed

Missoula and Ravalli counties did not request any risk changes; however, they noted that many roads are poorly cut. This leads to more water runoff which leads to landslides. The steeply cut Highway 83 by Salmon Lake was cited as an example of this condition. Landslides are occurring near the highway.

Severe Thunderstorm, Hail, Wind and Tornadoes

Lincoln – Low
Flathead – Medium
Sanders – High
Lake – High
Mineral – High
Missoula – High
Ravalli – High
Granite – Medium
Powell – Low
Deer Lodge – Medium
Silver Bow – Medium
Flathead Reservation – Low

Missoula and Ravalli counties are both rated as high risk for Severe Thunderstorms, Hail, Wind and Tornadoes. It was noted that mini twisters are occurring in the area.

Terrorism and Violence

Lincoln – Low
Flathead – Low
Sanders – Medium
Lake – Medium
Mineral – Not Assessed
Missoula – Change from Not Assessed to Medium
Ravalli – Change from Not Assessed to Medium
Granite – Low
Powell – Low
Deer Lodge – Low
Silver Bow – Low
Flathead Reservation – Not Assessed

Missoula County requested the risk be upgraded to medium for this hazard, particularly for bioterrorism. Participants noted that the University acts as a lightening rod for bioterrorism activities. Additionally, the counter culture element, in the north part of the County, and the Ruckus Society in Missoula could be a threat based on past occurrences. Sporting events are also considered to be an opportunity for violence.

Ravalli County also felt that they were at a medium risk for Terrorism and Violence.

Volcanic Eruption

Lincoln – Not Assessed
Flathead – Not Assessed
Sanders – Not Assessed
Lake – Not Assessed
Mineral – Low
Missoula – Low
Ravalli – Low

Granite – Low
Powell – Not Assessed
Deer Lodge – Low
Silver Bow – Low
Flathead Reservation – Not Assessed

Both Missoula and Ravalli counties rated their risk for the Volcanic Eruption hazard as low and no changes are necessary.

Wildfire

Lincoln – High
Flathead – High
Sanders – Not Assessed
Lake – High
Mineral – Medium
Missoula – Change from Medium to High
Ravalli – Change from Medium to High
Granite – High
Powell – Not Assessed
Deer Lodge – High
Silver Bow - Medium
Flathead Reservation – High

Missoula and Ravalli counties noted that their risk for Wildfire should be upgraded from medium to high.

Winterstorm

Lincoln – Medium
Flathead – High
Sanders – High
Lake – High
Mineral – High
Missoula – High
Ravalli – High
Granite – Medium
Powell – Low
Deer Lodge –Medium
Silver Bow - High
Flathead Reservation - Low

Some participants felt that the threat from Winterstorms would decrease with global warming, except at high elevations. Others in the audience disagreed and identified rain on snow events as a significant factor for flooding in both counties.

ASSESSMENT OF STATE GOALS – DISTRICT 1

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Missoula County noted that removal of the Milltown Dam would change inundation areas of the mostly private downstream dams below. Consequently, private dam owners would need to update. Additionally, the priority rating of the mitigation project that concerned the adoption of regulations that enforced no-build zones in floodplains and flood prone zones should be upgraded from moderate to high.

Ravalli County has not finished the stream mapping project (only Bitterroot is mapped) and the priority remains high. The priority for the project that identifies critical access bridges should be changed from moderate to high.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Missoula County has finished the mitigation projects that concern mapping of heavy fuel areas and completion of the CWPP.

Goal 5: Reduce potential earthquake losses in Western Montana.

No projects listed for Missoula or Ravalli counties.

Goal 6: Minimize economic impacts of drought.

Goal 7: Reduce impacts from severe winter weather.

No projects listed for Missoula or Ravalli counties.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

No projects listed for Missoula or Ravalli counties.

OTHER COMMENTS

Participants inquired if the DNRC could provide funding for dam failure early warning systems. Under certain circumstances, funding is available.

Missoula County inquired if there was a program that the State could enforce that helped counties prevent building in the floodplains and Wildland Urban Interface.

Missoula and Ravalli counties also felt state goals 3 (flood) and 4 (wildfire) should receive a higher priority and possibly be grouped together. Hazardous Material Incidents should also be grouped with high risk hazards. It was suggested that all other hazards be grouped together under Goal 8.

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Monday, March 13, 2007

Time: 4:46 pm – 6:46 pm

Place: Polson, Montana

Meeting Attendance:

Valeda VanDerSande, RSVP/CERT
Wayne VanDerSande, RSVP/CERT
Avis Spencer, Ft. Belknap Tribes
Clete Gregory, Pondera County DES
Sheri Lanz, MT DES
Richard A. Burrows, Liberty County
Ed Auken, Big Horn
Bart Bonney, Granite County DES
Jolene Jacobson, CSRT DES
Stephen Stanley, Lake County OTEM
Mark Peck, Flathead County
Marc McGill, Lincoln County
Charlie Hanson, MT DES District 5 Rep
Martha Smith, MT DES District 1 Rep
Bill Volgel, Sanders County OEM
Bill Colwall, Missoula Rural Fire District
Earl Hall, University of Montana
Darell Stafford, Liberty County/Toole County DES
Carla Danielson, Liberty County/Toole County DES
Sally Buckles, Jefferson County DES
Linda Connor, Fort Peck - Roosevelt County
Wilfred Lambert, Fort Peck - Roosevelt County
Dick Charest, American Red Cross R/R/R
Robert DesRosier, Blackfeet Tribe DES
Marc McGill, Lincoln County
Paul Spengler, Lewis and Clark County DES
Kent Atwood, State of Montana – DES
Larry Akers, Contractor
Daphne Digrindakis, Contractor

ASSESSMENT OF HAZARDS

Drought

Big Horn – High

Carter – High

Blackfeet Reservation – Change from Medium to High

Participants noted that drought should be rated higher in a couple counties and the Blackfeet Reservation. It was inquired if the BIA would buy into the State PDM Plan and a suggestion was made to invite this agency to the April 19th stakeholder meetings in Helena. It was also observed that the perception of drought risk has changed over time.

Earthquake

Lincoln – Change from Low to Medium
Flathead – Change from Low to Medium
Sanders – Change from Low to Medium
Lake – Change from Low to Medium
Mineral – Change from Low to Medium
Missoula – Medium
Ravalli – Change from Low to Medium
Granite – Medium
Powell – Change from Low to Medium
Deer Lodge – Change from Low to Medium
Silver Bow - Change from Low to Medium
Lewis & Clark – Change from Medium to High
Flathead Reservation - Change from Low to Medium

District 1 was observed to have overall low risk ratings for the earthquake hazard and it was suggested that this should be reconsidered. Participants suggested that other hazards, like severe weather, are a higher risk to the population. People are apathetic to earthquakes because they occur infrequently. It was suggested that the earthquake hazard be reviewed at the stakeholders meeting in April.

Flood

Lincoln – Change from Medium to High
Missoula – High
Pondera – Change from High to Medium

Participants observed that counties in District 1 have low, medium and high risk for flooding. Lincoln County had a long period without flooding but will update the risk as flooding has recently occurred. Pondera County had a major flood in 1964; however, the threat of flood is not high anymore and the risk should be considered medium. Most of the state shows that local plans have a high risk for flood.

Hazardous Material Incident

Lewis & Clark – Change from Low to Medium
Missoula – High
Sanders – Change from Medium to High
Mineral - Change from Medium to High
Fort Peck Reservation - Change from Medium to High
Flathead Reservation – Change from Low to Medium
Glacier – Change from Not Assessed to Medium

It was observed that some local plans only considered natural hazards and that some recent plans have included the Hazardous Material Incident hazard. Participants noted that Lewis & Clark should be upgraded to medium risk and Sanders, Missoula and Mineral counties should be upgraded to high risk. The Fort Peck Reservation should also be at high risk as oil wells have contaminated water supplies. It was also observed that in Cascade County, Malmstrom has a hazmat collection system that needs to be considered. However, the Cascade County PDM is incomplete and hasn't been submitted to the state. It was suggested that the State PDM Plan overlay transportation corridors onto the HAZMAT hazard map to identify high areas of risk. It was also noted that Lake County and the Flathead Reservation should have the same hazard risks as they occupy the same territory. The same was said of the Blackfeet Reservation and Glacier County.

Landslide

Lincoln – Change from Low to Medium

Flathead – Change from Low to Medium

Big Horn – Medium

Lake – Change from Not Assessed to Medium

Sanders – Change from Not Assessed to Medium

Participants felt that Lincoln, Big Horn, Flathead, Lake and Sanders counties should be upgraded to medium risk. It was noted that a landslide into Big Horn Lake could cause a large seich and/or dam failure.

Severe Thunderstorms, Hail, Wind and Tornadoes

Lincoln – Change from Low to High

Flathead – Change from Medium to High

Fort Belknap Reservation - Change from Low to High

Participants discussed the need to upgrade the risk for Lincoln and Flathead counties and the Fort Belknap Reservation to high.

Terrorism and Violence

No change.

Volcanic Eruption

No change, but it was noted that ashfall from Cascades is still a hazard.

Wildfire

It was noted that entire state should be classified as high hazard.

Winterstorms

Lewis & Clark – Change from Low to Medium

Lincoln – Change from Medium to High

Changes were suggested for Lewis & Clark and Lincoln counties.

ASSESSMENT OF STATE GOALS

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

The counties felt that more money should be spent on wildfire than flooding. Additionally, drought should be associated with wildfire hazard and wildfire associated with drought hazard.

Goal 5: Reduce potential earthquake losses in Western Montana.

Goal 6: Minimize economic impacts of drought.

Goal 7: Reduce impacts from severe winter weather.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

Counties felt that Hazardous Materials Incident should be a separate goal. The state legislature does not properly support state HAZMAT teams. The hazards grouped together under this goal should be separate if they are considered to be high risk. Severe Thunderstorms, Hail, Wind and Tornadoes should also be a separate hazard.

OTHER COMMENTS

The money spent for response and recovery should consider goal priority.

Goal should be correlated with risk rating.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results

What jurisdiction type do you represent?				
			Response Percent	Response Count
Federal	<input type="checkbox"/>		12.1%	4
State	<input type="checkbox"/>		3.0%	1
County	<input type="checkbox"/>		42.4%	14
Tribal	<input type="checkbox"/>		3.0%	1
Public Utility	<input type="checkbox"/>		12.1%	4
General Public	<input type="checkbox"/>		12.1%	4
Other (please specify)	<input type="checkbox"/>		30.3%	10
			answered question	33
			skipped question	0

What County/Tribal Community do you represent or as a private citizen where do you live?				
			Response Percent	Response Count
Blackfeet			0.0%	0
Crow			0.0%	0
Flathead	<input type="checkbox"/>		9.1%	3
Fort Belknap			0.0%	0
Fort Peck			0.0%	0
Northern Cheyenne			0.0%	0
Rocky Boy's			0.0%	0
Beaverhead			0.0%	0
Big Horn			0.0%	0
Blaine			0.0%	0
Broadwater			0.0%	0
Carbon			0.0%	0
Carter			0.0%	0
Cascade			0.0%	0
Chouteau			0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment



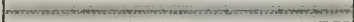
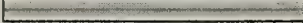

Custer	0.0%	0
Daniels	0.0%	0
Dawson	0.0%	0
Deer Lodge 	3.0%	1
Fallon	0.0%	0
Fergus	0.0%	0
Flathead 	6.1%	2
Gallatin	0.0%	0
Garfield	0.0%	0
Glacier	0.0%	0
Golden Valley	0.0%	0
Granite	0.0%	0
Hill	0.0%	0
Jefferson	0.0%	0
Judith Basin	0.0%	0
Lake 	3.0%	1
Lewis And Clark	0.0%	0
Liberty	0.0%	0
Lincoln 	3.0%	1
Madison	0.0%	0
McCone	0.0%	0
Meagher	0.0%	0
Mineral	0.0%	0
Missoula 	27.3%	9
Musselshell	0.0%	0
Park	0.0%	0
Petroleum	0.0%	0
Phillips	0.0%	0
Pondera	0.0%	0
Powder River	0.0%	0
Powell	0.0%	0



State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie	0.0%	0
Ravalli	48.5%	16
Richland	0.0%	0
Roosevelt	0.0%	0
Rosebud	0.0%	0
Sanders	0.0%	0
Sheridan	0.0%	0
Silver Bow	0.0%	0
Stillwater	0.0%	0
Sweet Grass	0.0%	0
Teton	0.0%	0
Toole	0.0%	0
Treasure	0.0%	0
Valley	0.0%	0
Wheatland	0.0%	0
Wibaux	0.0%	0
Yellowstone	0.0%	0
Other	0.0%	0
answered question		33
skipped question		0

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.

	Response Percent	Response Count
Yes	54.6%	18
No	45.5%	15
answered question		33
skipped question		0

How would you rate the overall quality and content of the plan.			Response Percent	Response Count
1 - Poor			0.0%	0
2			12.5%	2
3 - Average			50.0%	8
4			43.8%	7
5 - Excellent			6.3%	1
			answered question	16
			skipped question	17

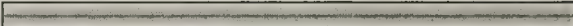
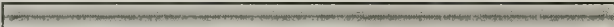
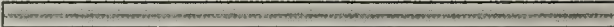
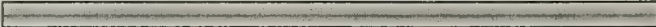

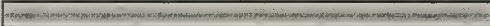
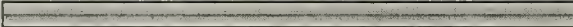
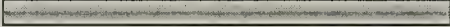
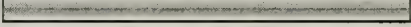
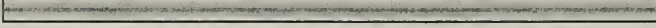
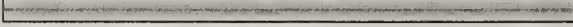
Do you feel the plan accurately portrays natural and man-made hazards in Montana?			Response Percent	Response Count
Yes			87.5%	14
No			25.0%	4
			answered question	16
			skipped question	17

What improvements do you think could be made to the plan?		Response Count
		9
		answered question 9
		skipped question 24

From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction. High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	38.1% (8)	42.9% (9)	19.0% (4)	1.81	21
Drought	28.6% (6)	57.1% (12)	14.3% (3)	1.86	21
Earthquake	40.0% (8)	45.0% (9)	15.0% (3)	1.75	20
Flooding/Dam Failure	52.4% (11)	38.1% (8)	9.5% (2)	1.57	21
Hazardous Material Incidents	42.9% (9)	47.6% (10)	9.5% (2)	1.67	21
Landslide	14.3% (3)	33.3% (7)	52.4% (11)	2.38	21
Terrorism/Violence	4.8% (1)	23.8% (5)	71.4% (15)	2.67	21
Thunderstorm Wind, Hail, and Tornadoes	33.3% (7)	52.4% (11)	14.3% (3)	1.81	21
Volcanic Eruption	4.8% (1)	9.5% (2)	85.7% (18)	2.81	21
Wildfire	85.7% (18)	14.3% (3)	0.0% (0)	1.14	21
Winter Storms/Avalanche	33.3% (7)	57.1% (12)	9.5% (2)	1.76	21
<i>answered question</i>					21
<i>skipped question</i>					12

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.

		Response Percent	Response Count
Communicable Disease		82.4%	14
Drought		88.2%	15
Earthquake		88.2%	15
Flooding/Dam Failure		94.1%	16
Hazardous Material Incidents		88.2%	15
Landslide		70.6%	12
Terrorism/Violence		82.4%	14
Thunderstorm Wind, Hail, and Tornadoes		64.7%	11
Volcanic Eruption		58.8%	10
Wildfire		94.1%	16
Winter Storms/Avalanche		82.4%	14
		<i>answered question</i>	17
		<i>skipped question</i>	16

Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=highest / 10=lowest):

	High			Medium			Low			Rating Average	
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	44.4% (8)	5.6% (1)	27.8% (5)	5.6% (1)	5.6% (1)	0.0% (0)	11.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	2.67
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	41.2% (7)	17.6% (3)	5.9% (1)	0.0% (0)	29.4% (5)	0.0% (0)	5.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.82
Reduce the Community Impacts of Wildland and Rangeland Fires	41.2% (7)	17.6% (3)	29.4% (5)	5.9% (1)	5.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.18
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	11.8% (2)	11.8% (2)	0.0% (0)	5.9% (1)	58.8% (10)	5.9% (1)	0.0% (0)	0.0% (0)	0.0% (0)	5.9% (1)	4.47
Minimize Economic Impacts of Drought	0.0% (0)	11.8% (2)	11.8% (2)	5.9% (1)	41.2% (7)	0.0% (0)	17.6% (3)	5.9% (1)	5.9% (1)	0.0% (0)	5.12
Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)	5.9% (1)	5.9% (1)	11.8% (2)	5.9% (1)	29.4% (5)	5.9% (1)	5.9% (1)	17.6% (3)	11.8% (2)	0.0% (0)	5.47
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	5.9% (1)	17.6% (3)	0.0% (0)	5.9% (1)	29.4% (5)	0.0% (0)	17.6% (3)	11.8% (2)	11.8% (2)	0.0% (0)	5.35
Reduce Potential Earthquake Losses in Western Montana	5.9% (1)	5.9% (1)	5.9% (1)	11.8% (2)	29.4% (5)	0.0% (0)	17.6% (3)	17.6% (3)	5.9% (1)	0.0% (0)	5.47
Reduce Losses from Hazardous Material Incidents	27.8% (5)	0.0% (0)	22.2% (4)	0.0% (0)	22.2% (4)	5.6% (1)	0.0% (0)	16.7% (3)	0.0% (0)	5.6% (1)	4.28
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	11.8% (2)	11.8% (2)	0.0% (0)	0.0% (0)	29.4% (5)	0.0% (0)	11.8% (2)	23.5% (4)	11.8% (2)	0.0% (0)	5.59
answered question											
skipped question											

Please indicate any additional Goals you think should be added to the State Plan.

	Response Count
	6
answered question	6
skipped question	27

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.

	High			Medium					Low		Rating Average
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	40.0% (6)	6.7% (1)	13.3% (2)	13.3% (2)	13.3% (2)	0.0% (0)	6.7% (1)	6.7% (1)	0.0% (0)	0.0% (0)	3.13
Conduct Level 1 HAZUS-MH analyses for all Montana counties	6.7% (1)	6.7% (1)	13.3% (2)	26.7% (4)	33.3% (5)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	6.7% (1)	4.47
Improve Statewide HAZUS data	6.7% (1)	13.3% (2)	26.7% (4)	6.7% (1)	33.3% (5)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	6.7% (1)	4.20
Determine GPS locations of all State buildings for detailed, non-public analysis	13.3% (2)	33.3% (5)	6.7% (1)	6.7% (1)	26.7% (4)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	6.7% (1)	3.73
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	0.0% (0)	20.0% (3)	20.0% (3)	6.7% (1)	20.0% (3)	0.0% (0)	20.0% (3)	13.3% (2)	0.0% (0)	0.0% (0)	4.73
Promote earth science education of hazards in schools	33.3% (5)	6.7% (1)	6.7% (1)	6.7% (1)	33.3% (5)	0.0% (0)	13.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.53
Conduct a Statewide warning capability assessment	26.7% (4)	20.0% (3)	6.7% (1)	20.0% (3)	20.0% (3)	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	3.20
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	73.3% (11)	0.0% (0)	6.7% (1)	13.3% (2)	6.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.80
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	20.0% (3)	13.3% (2)	20.0% (3)	6.7% (1)	40.0% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.33
Increase the public awareness of hazards	26.7% (4)	20.0% (3)	13.3% (2)	13.3% (2)	20.0% (3)	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	3.13
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	53.3% (8)	6.7% (1)	6.7% (1)	6.7% (1)	20.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	6.7% (1)	2.80
Increase readiness for the protection of life and property during an event	46.7% (7)	20.0% (3)	6.7% (1)	6.7% (1)	20.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.33
answered question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

5

answered question

5

skipped question

28

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High			Medium						Low	Rating Average
Continue outreach of mitigation project funding opportunities	26.7% (4)	13.3% (2)	33.3% (5)	0.0% (0)	20.0% (3)	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	3.07
Provide technical assistance with the environmental review process	6.7% (1)	20.0% (3)	26.7% (4)	0.0% (0)	26.7% (4)	0.0% (0)	6.7% (1)	6.7% (1)	0.0% (0)	6.7% (1)	4.27
Provide technical assistance for project development	13.3% (2)	13.3% (2)	26.7% (4)	6.7% (1)	33.3% (5)	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	3.67
Create an electronic database of completed mitigation projects in Montana	6.7% (1)	13.3% (2)	6.7% (1)	13.3% (2)	33.3% (5)	6.7% (1)	0.0% (0)	6.7% (1)	6.7% (1)	6.7% (1)	4.93
Increase the scope and participation of the State Hazard Mitigation Team	6.7% (1)	33.3% (5)	13.3% (2)	6.7% (1)	20.0% (3)	0.0% (0)	6.7% (1)	6.7% (1)	0.0% (0)	6.7% (1)	4.07
Create a private advisory group for mitigation	20.0% (3)	13.3% (2)	13.3% (2)	6.7% (1)	13.3% (2)	6.7% (1)	6.7% (1)	6.7% (1)	0.0% (0)	13.3% (2)	4.53
Streamline mitigation standards in state and/or local subdivision regulations	14.3% (2)	21.4% (3)	21.4% (3)	0.0% (0)	28.6% (4)	0.0% (0)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	3.71
Strengthen state and/or local building codes	46.7% (7)	6.7% (1)	26.7% (4)	6.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	6.7% (1)	2.87
Require growth policies consider natural and man-made hazard	40.0% (6)	6.7% (1)	13.3% (2)	6.7% (1)	13.3% (2)	0.0% (0)	6.7% (1)	13.3% (2)	0.0% (0)	0.0% (0)	3.40
Create a state funded grant program to assist with the 25% match for local governments	33.3% (5)	26.7% (4)	0.0% (0)	6.7% (1)	13.3% (2)	0.0% (0)	6.7% (1)	6.7% (1)	6.7% (1)	0.0% (0)	3.40
Coordinate local plan development	28.6% (4)	0.0% (0)	21.4% (3)	0.0% (0)	28.6% (4)	0.0% (0)	14.3% (2)	7.1% (1)	0.0% (0)	0.0% (0)	3.93
Provide technical assistance with											

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	26.7%	13.3%	33.3%	0.0%	6.7%	6.7%	0.0%	6.7%	0.0%	6.7%	3.47
	(4)	(2)	(5)	(0)	(1)	(1)	(0)	(1)	(0)	(1)	
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
											Response Count
											3
answered question											3
skipped question											30

Goal: Mitigate the potential loss of life and property from flooding.											
	High				Medium				Low		Rating Average
Develop and improve upon model floodplain ordinances for local governments	21.4%	14.3%	7.1%	21.4%	28.6%	0.0%	0.0%	7.1%	0.0%	0.0%	3.57
	(3)	(2)	(1)	(3)	(4)	(0)	(0)	(1)	(0)	(0)	
Develop mapping for unmapped flood prone areas	21.4%	28.6%	7.1%	14.3%	14.3%	0.0%	7.1%	7.1%	0.0%	0.0%	3.36
	(3)	(4)	(1)	(2)	(2)	(0)	(1)	(1)	(0)	(0)	
Update floodplain mapping of mapped areas	14.3%	28.6%	0.0%	21.4%	21.4%	0.0%	0.0%	7.1%	0.0%	7.1%	3.93
	(2)	(4)	(0)	(3)	(3)	(0)	(0)	(1)	(0)	(1)	
Establish a schedule for NFIP map reviews and updates	7.1%	7.1%	21.4%	7.1%	35.7%	0.0%	0.0%	7.1%	0.0%	14.3%	4.93
	(1)	(1)	(3)	(1)	(5)	(0)	(0)	(1)	(0)	(2)	
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	7.1%	14.3%	7.1%	28.6%	35.7%	0.0%	0.0%	7.1%	0.0%	0.0%	4.07
	(1)	(2)	(1)	(4)	(5)	(0)	(0)	(1)	(0)	(0)	
Increase the public awareness of flood mitigation	28.6%	21.4%	21.4%	7.1%	14.3%	0.0%	0.0%	7.1%	0.0%	0.0%	2.93
	(4)	(3)	(3)	(1)	(2)	(0)	(0)	(1)	(0)	(0)	
Reduce the number of current and future structures in the floodplain	57.1%	7.1%	7.1%	0.0%	14.3%	14.3%	0.0%	0.0%	0.0%	0.0%	2.50
	(8)	(1)	(1)	(0)	(2)	(2)	(0)	(0)	(0)	(0)	
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	35.7%	7.1%	21.4%	14.3%	14.3%	7.1%	0.0%	0.0%	0.0%	0.0%	2.86
	(5)	(1)	(3)	(2)	(2)	(1)	(0)	(0)	(0)	(0)	
Provide adequate warning of flooding events	50.0%	35.7%	14.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.64
	(7)	(5)	(2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

2

answered question

2

skipped question

31

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium				Low		Rating Average
Reduce fuels in the wildland urban interface	64.3% (9)	7.1% (1)	7.1% (1)	0.0% (0)	14.3% (2)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.14
Reduce hazardous fuels in rangeland areas	42.9% (6)	7.1% (1)	7.1% (1)	14.3% (2)	7.1% (1)	0.0% (0)	7.1% (1)	7.1% (1)	0.0% (0)	7.1% (1)	3.50
Accurately assess and address the current wildland urban interface problems at the subdivision level	42.9% (6)	21.4% (3)	14.3% (2)	0.0% (0)	21.4% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.36
Enhance firefighting resources and improve firefighting capabilities	50.0% (7)	7.1% (1)	14.3% (2)	14.3% (2)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.36
Enhance community awareness of wildfires through education	71.4% (10)	14.3% (2)	0.0% (0)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.64
Enhance effectiveness of response and evacuation	42.9% (6)	14.3% (2)	14.3% (2)	14.3% (2)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.43
Establish mapping or record keeping practices to support fuel management strategies	28.6% (4)	21.4% (3)	7.1% (1)	7.1% (1)	35.7% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.00
Minimize human-caused ignition sources in fire-prone areas	35.7% (5)	14.3% (2)	7.1% (1)	0.0% (0)	21.4% (3)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	7.1% (1)	3.57
Centralize fire history documentation	21.4% (3)	14.3% (2)	7.1% (1)	7.1% (1)	28.6% (4)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	14.3% (2)	4.43
Develop a consistent Statewide fire risk assessment system	21.4% (3)	28.6% (4)	14.3% (2)	7.1% (1)	14.3% (2)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	7.1% (1)	3.50
Encourage sustainable growth in wildland fire hazard areas	30.8% (4)	15.4% (2)	0.0% (0)	7.7% (1)	23.1% (3)	0.0% (0)	0.0% (0)	15.4% (2)	7.7% (1)	0.0% (0)	4.00

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

4

answered question

4

skipped question

29

Goal: Reduce potential earthquake losses in Western Montana.

	High				Medium				Low		Rating Average
Goal: Reduce potential earthquake losses in Western Montana.	14.3% (2)	21.4% (3)	0.0% (0)	0.0% (0)	28.6% (4)	14.3% (2)	7.1% (1)	0.0% (0)	0.0% (0)	14.3% (2)	4.79
Provide greater enforcement of current building codes	14.3% (2)	28.6% (4)	28.6% (4)	0.0% (0)	21.4% (3)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.14
Develop model seismic building codes	0.0% (0)	28.6% (4)	14.3% (2)	0.0% (0)	35.7% (5)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	7.1% (1)	4.43
Create stronger building standards for critical facilities and structures housing vulnerable populations	28.6% (4)	7.1% (1)	14.3% (2)	7.1% (1)	21.4% (3)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	7.1% (1)	3.86
Require earthquake drills in schools in Western Montana	35.7% (5)	21.4% (3)	14.3% (2)	7.1% (1)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	7.1% (1)	2.93
Expand and upgrade earthquake monitoring network and reporting capabilities	7.1% (1)	28.6% (4)	14.3% (2)	21.4% (3)	28.6% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.36
Continue "Earthquake Preparedness Month" outreach activities during the month of October	7.1% (1)	21.4% (3)	7.1% (1)	14.3% (2)	35.7% (5)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	7.1% (1)	4.36
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	14.3% (2)	7.1% (1)	21.4% (3)	14.3% (2)	42.9% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.64
Seismically retrofit existing critical facilities and government assets	14.3% (2)	7.1% (1)	21.4% (3)	0.0% (0)	35.7% (5)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	7.1% (1)	4.29

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

33

Goal: Minimize economic impacts of drought.

	High			Medium						Low	Rating Average
Develop a system for distributing information on current conditions	14.3% (2)	7.1% (1)	28.6% (4)	14.3% (2)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	21.4% (3)	4.57
Continue to support the State Drought Advisory Committee	21.4% (3)	14.3% (2)	21.4% (3)	7.1% (1)	7.1% (1)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	14.3% (2)	4.07
Install Statewide drought monitoring stations	14.3% (2)	21.4% (3)	14.3% (2)	7.1% (1)	14.3% (2)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	21.4% (3)	4.57
Use long-term groundwater monitoring to assess drought conditions	14.3% (2)	28.6% (4)	21.4% (3)	7.1% (1)	7.1% (1)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	14.3% (2)	3.93
Educate farmers and ranchers in fiscally preventing drought losses	42.9% (6)	21.4% (3)	21.4% (3)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	2.43
Educate farmers and ranchers in reducing physical losses during dry seasons	28.6% (4)	28.6% (4)	21.4% (3)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	7.1% (1)	3.14
Identify water retention projects that could lessen the effects of drought	42.9% (6)	28.6% (4)	14.3% (2)	0.0% (0)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.21

answered question

skipped question

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											Response Count
											2
											answered question
											2
											skipped question
											31

Goal: Reduce impacts from severe winter weather.											
	High			Medium			Low			Rating Average	
Distribute winter driving and survival tips	14.3% (2)	28.6% (4)	14.3% (2)	0.0% (0)	28.6% (4)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	7.1% (1)	3.71
Increase public awareness of winter weather hazards	21.4% (3)	14.3% (2)	35.7% (5)	0.0% (0)	21.4% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	7.1% (1)	3.36
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	7.1% (1)	14.3% (2)	21.4% (3)	14.3% (2)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	7.1% (1)	28.6% (4)	5.43
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	42.9% (6)	21.4% (3)	21.4% (3)	0.0% (0)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.21
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	14.3% (2)	14.3% (2)	21.4% (3)	7.1% (1)	28.6% (4)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	7.1% (1)	4.07
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											Response Count
											1
											answered question
											1
											skipped question
											32

Goal: Reduce impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)											
	High			Medium			Low			Rating Average	R
Install safety film on critical facilities to prevent shattering glass.	0.0%	14.3%	28.6%	14.3%	21.4%	7.1%	0.0%	0.0%	0.0%	14.3%	4.64
	(0)	(2)	(4)	(2)	(3)	(1)	(0)	(0)	(0)	(2)	
Encourage development and enforcement of wind resistant buildings and construction codes	7.7%	7.7%	38.5%	0.0%	30.8%	7.7%	0.0%	0.0%	0.0%	7.7%	4.15
	(1)	(1)	(5)	(0)	(4)	(1)	(0)	(0)	(0)	(1)	
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	7.1%	14.3%	14.3%	14.3%	35.7%	0.0%	0.0%	7.1%	0.0%	7.1%	4.43
	(1)	(2)	(2)	(2)	(5)	(0)	(0)	(1)	(0)	(1)	
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.		Response Count
		0
answered question		0
skipped question		33

Goal: Reduce losses from Hazardous Material Incidents												Rating Average	Re. C
	High				Medium				Low				
Develop communication plan for hazardous material emergencies	42.9% (6)	35.7% (5)	14.3% (2)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)		1.93	
Enhance information capability on types of hazardous materials traveling transportation routes	42.9% (6)	21.4% (3)	14.3% (2)	0.0% (0)	7.1% (1)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	7.1% (1)		2.86	
Provide hazardous material training to emergency responders	42.9% (6)	42.9% (6)	14.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)		1.71	
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	42.9% (6)	35.7% (5)	7.1% (1)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)		2.00	
												answered question	
												skipped question	

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.		Response Count
		0
	answered question	0
	skipped question	33

Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High			Medium						Low	Rating Average
Identify and map areas of greatest landslide and avalanche potential	0.0% (0)	7.1% (1)	14.3% (2)	0.0% (0)	42.9% (6)	14.3% (2)	7.1% (1)	0.0% (0)	0.0% (0)	14.3% (2)	5.50
Create a landslide/avalanche technical committee	0.0% (0)	7.1% (1)	21.4% (3)	7.1% (1)	21.4% (3)	7.1% (1)	0.0% (0)	7.1% (1)	0.0% (0)	28.6% (4)	6.00
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	14.3% (2)	7.1% (1)	21.4% (3)	7.1% (1)	21.4% (3)	0.0% (0)	0.0% (0)	14.3% (2)	0.0% (0)	14.3% (2)	4.86
Reduce losses from communicable disease	21.4% (3)	28.6% (4)	7.1% (1)	7.1% (1)	14.3% (2)	7.1% (1)	7.1% (1)	7.1% (1)	0.0% (0)	0.0% (0)	3.50
Increase awareness of risks from communicable disease	35.7% (5)	28.6% (4)	7.1% (1)	7.1% (1)	14.3% (2)	0.0% (0)	0.0% (0)	7.1% (1)	0.0% (0)	0.0% (0)	2.71
	answered question										
	skipped question										

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	0
<i>answered question</i>	0
<i>skipped question</i>	33

Please indicate how long it took you to complete the survey.			Response Percent	Response Count
5 minutes			0.0%	0
10 minutes	<div></div>		28.6%	4
15 minutes	<div></div>		21.4%	3
20 minutes	<div></div>		14.3%	2
30 minutes	<div></div>		28.6%	4
Greater than 30 minutes	<div></div>		7.1%	1
answered question				14
skipped question				19

District 1 On-Line Survey - Other Jurisdictions Completing Survey

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Comment Text		Response Date
 Find	1. fire district	Wed, 6/20/07 9:30 AM
 Find	2. American Red Cross of Montana	Wed, 6/6/07 1:12 PM
 Find	3. Red Cross	Tue, 5/29/07 3:00 PM
 Find	4. Private Business	Fri, 5/25/07 8:09 AM
 Find	5. local gov't: fire district	Thu, 5/24/07 10:45 AM
 Find	6. Volunteer Ambulance Supervisor	Thu, 5/24/07 10:12 AM
 Find	7. municipal	Wed, 5/23/07 5:29 PM
 Find	8. Municipality	Wed, 5/23/07 3:44 PM
 Find	9. City	Wed, 5/23/07 2:22 PM
 Find	10. University	Wed, 5/23/07 1:41 PM

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District 1 On-Line Survey - Suggested Improvements to State Plan

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





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Comment Text	Response Date
 Find 1. It is not a plan. It only identified hazards to be mitigated. There is no assignment of tasks to specific agencies. The report does not include local fire districts as first responders or mitigators (inclusion of state organizations such as the Fire Chiefs Association or FF Association does not count; these groups do not represent the chiefs or firefighters.)	Wed, 6/20/07 9:32 AM
 Find 2. liugjlgf	Tue, 6/5/07 9:25 AM
 Find 3. none.	Tue, 5/29/07 3:01 PM
 Find 4. none.	Tue, 5/29/07 3:00 PM
 Find 5. It only identifies risks and doesn't really address mitigation. There is NO coverage of response. Local fire districts are not included in response planning.	Thu, 5/24/07 10:48 AM
 Find 6. 1. Increased emphasis on working County and State working more closely with your Federal counterparts that are already trained and experienced in the different areas of Hazards utilize the expertise and federal funding. 2. Increased emphasis on mitigation measure that can be taken by the general public in advance - and increase awareness among our state and federal congressional staff - for funding of mitigation.	Thu, 5/24/07 10:25 AM
 Find 7. add infectious disease (pandemic influenza, smallpox, etc) as a natural hazard. Hazard Table. When assigning a value to each hazard based on potential to impact people & property, list frequency on a different table so not to artificially elevate one hazard over another	Wed, 5/23/07 8:34 PM
 Find 8. Additional contact information for local governmental agencies.	Wed, 5/23/07 3:44 PM
 Find 9. More detailed assessments of hazards at the local (county) level will change the portrayed hazards for the state.	Wed, 5/23/07 2:57 PM
 Find 10. In my opinion the ranking of hazards is inaccurate. The problem lies with probability (frequency) vs. severity (loss potential) and what individuals consider to be a "risk". I think it would be helpful to provide a clear definition or standardized guidelines in order to get more accurate feedback. I also have some concerns with the background or expertise of those providing input on the plan. From what I have witnessed, input from individuals with no experience in emergency response or hazard mitigation carries the same weight as input from local fire chiefs and other public safety officials. In my opinion, this impacts the validity of the hazards and risk rankings.	Wed, 5/23/07 2:45 PM
10 responses per page	

Displaying 1 - 6 of 6 responses

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Comment Text		Response Date
<div>Find</div> <div>1. I feel that the state should look at the economics of fire supression. Outsourcing fire supression to a private interprize will prove to be more expensive in the future. In the past you needed dry conditions and an ignition source to start a forrest fire. With the evolution of fire supression being big business to the private sector, we now only need dry conditions to ensure a very active fire season. Human caused fires are at an all time high and I feel the government will need to take the supression effort back into their own hands.</div>		Mon, 6/11/07 12:58 PM
<div>Find</div> <div>2. There should be a real push to empower communities to be as self-sufficient as possible on many levels, including food production, sustainable energy alternatives, and drinkable water supply in addition to just mitigating for possible disasters. There is a root to the root of the problems that come with coping with and recovering from disasters, and they should be included in the decision making process. Also, the Red Cross has developed a school curriculum called Masters of Disaster (www.redcross.org/disaster/masters) that addresses possible disasters in Montana and what students K-8 can do to help prepare their families for such emergency situations. It is a comprehensive curriculum that incorporates teaching standards so that it can be plugged in to existing educational goals in language arts, math, science, and social studies. Another component of this program is called Facing Fear, and gives teachers K-12 tools to help students and their families cope with disastrous events, both natural and man-made, no matter how far away such events occurred.</div>		Thu, 6/7/07 8:28 AM
<div>Find</div> <div>3. Increase cooperation with Federal Agencies already trained in All Hazard Risk and Incident Command structure teams. Increase funding mechanisms to allow immediate use of the Federal Command Teams.</div>		Thu, 5/24/07 12:22 PM
<div>Find</div> <div>4. wild life mitigation</div>		Thu, 5/24/07 7:40 AM
<div>Find</div> <div>5. Prepare for potential impacts of pandemic influenza outbreak.</div>		Wed, 5/23/07 3:08 PM
<div>Find</div> <div>6. Develop executive orders that suspend the normal "standards of care" in a pandemic. Create a State Task Force to examine and provide ethical guidance to health care providers and institutions in a pandemic situation.</div>		Wed, 5/23/07 1:52 PM
10 responses per page		

District 1 On-Line Survey - Additional Mitigation Projects for Goal 1

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





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Comment Text		Response Date
 Find	1. Masters of Disaster, a comprehensive curriculum developed by specialists and provided by the American Red Cross. More information can be obtained by visiting the website: www.redcross.org/disaster/masters or by calling the Missoula office at 549-6441.	Thu, 6/7/07 8:43 AM
 Find	2. People should be forced/encouraged to start taking their own responsibility and ownership for their own safety and well-being. It is not the job of the FED/STATE/ CO government alone to try and make people safe from fire, flood, etc. Provide opportunities for folks to learn how to protect themselves and then expect them to do it!	Wed, 5/30/07 1:25 PM
 Find	3. Better communication methods on a state wide basis; funding for all branches of EMS to be able to provide first responders with Radios and communication tools in event of disaster.	Thu, 5/24/07 12:26 PM
 Find	4. Promote citizen self sufficiency and educate public on limitations of government's ability to respond.	Wed, 5/23/07 3:19 PM
 Find	5. fuel reduction in the forests. Selective harvest and thinning.	Wed, 5/23/07 1:56 PM
		10 responses per page 










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Comment Text		Response Date
<div> Find</div> <div>1.     assist small local groups with funding for  Hazard Mitigation before the disaster occurs.</div>	Thu, 5/24/07 12:26 PM	
<div> Find</div> <div>2. Provide funding to map the numerous unrecognized floodplains across the State.</div>	Wed, 5/23/07 3:08PM	
<div> Find</div> <div>3. fuel reduction in the forests</div>	Wed, 5/23/07 1:56 PM	
10 responses per page 		

District 1 On-Line Survey - Other Drought Mitigation Projects

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Comment Text		Response Date
 Find	1. By "educate" farmers and ranchers, I hope that you intend to listen to them, as well, as they've been doing this for quite some time. I would be more inclined to spend money on scientific research and in working with farmers on site than to fund x number of committees and other groups that may be more "fluff" than proactive bodies that get things done.	Thu, 6/7/07 9:08 AM
 Find	2. Make flood irrigation illegal.	Wed, 5/30/07 1:30 PM
		10 responses per page 

District 1 On-Line Survey - Other Flood Mitiation Projects

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Comment Text		Response Date
 Find	1. I know that people along the Blackfoot corridor were upset at the ordinance restricting future development in the floodplain. Because of that reaction, there needs to be more of an effort to include the public in all of these mitigation processes, and to make more of an effort to educate the public on why these decisions are made that essentially limit landowner's freedoms, which is a big deal in Montana.	Thu, 6/7/07 9:02 AM
 Find	2. Provide planning assistance to local responders	Thu, 5/24/07 11:19 AM
		10 responses per page

District 1 On-Line Survey - Other Wildfire Mitigation Projects

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Comment Text		Response Date
 Find	1. mitigate making fire suppression big business or we will never win the battle against wildfires.	Mon, 6/11/07 1:11 PM
 Find	2. As long as there is a wildland/urban interface, there will be wildfire problems. Instead of spending so much time and resources on fuels reduction, it seems more reasonable to firmly limit development possibilities in such areas. I know that people want to live in these beautiful areas, but money does not grow on trees and our resources are limited. I think the money that was put towards fuels reduction could be shifted to fund education efforts and to pass legislation limiting development in forested, fire-prone areas.	Thu, 6/7/07 9:02 AM
 Find	3. Emphasize Shelter in place (Prepare, Stay, and Defend)	Thu, 5/24/07 11:19 AM
 Find	4. Assist local fire jurisdictions with wildfire response and fuel mitigation efforts.	Wed, 5/23/07 3:30 PM
		10 responses per page

District 1 On-Line Survey - Other Winter Weather Mitigation Projects

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Comment Text		Response Date
 Find	1. Have utilities put there eqipment underground in areas th at are hit by extreme weather.	Thu, 5/24/07 8:02 AM
10 responses per page		

District 1 On-Line Survey-Impact of Future Development on Communicable Disease

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	Comment Text	Response Date
 Find	1. Septic systems in county, pharmaceuticals	Thu, 6/21/07 9:40 AM
 Find	2. It will increase the possibility	Mon, 6/11/07 12:49 PM
 Find	3. Montana's isolated clusters of population may become more connected with increased development, which would affect the ability for disease to spread	Thu, 6/7/07 8:20 AM
 Find	4. communicable disease spreads more readily in densely populated areas	Wed, 6/6/07 8:19 AM
 Find	5. high	Mon, 6/4/07 8:02 AM
 Find	6. More people, more easier for things to spread	Wed, 5/30/07 1:17 PM
 Find	7. Critical - Hamilton Hospital could easily be maxed to capacity. Current Hospital based ambulance will be stretched to it's limits if not overwhelmed. Volunteer Services in outlying areas overwhelmed	Thu, 5/24/07 12:19 PM
 Find	8. No change	Thu, 5/24/07 10:58 AM
 Find	9. pandemic could occur	Thu, 5/24/07 9:41 AM
 Find	10. LOW	Thu, 5/24/07 7:36 AM
 Find	11. increased with denser populations	Thu, 5/24/07 4:23 AM
 Find	12. Increase	Wed, 5/23/07 3:47 PM
 Find	13. Increased population would increase the impact.	Wed, 5/23/07 2:57 PM
 Find	14. more development more people that live here that will get sick	Wed, 5/23/07 1:49 PM
		25 responses per page

District 1 On-Line Survey-Impact of Future Development on Drought

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












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Comment Text		Response Date
 Find	1. Will continue to be more prevalent with global warming	Fri, 6/15/07 9:31 AM
 Find	2. not much impact	Mon, 6/11/07 12:49 PM
 Find	3. Droughts leading to wildfire I think will be more significant than the droughts themselves at this point	Thu, 6/7/07 8:20 AM
 Find	4. more people, homes & businesses require more water	Wed, 6/6/07 8:19 AM
 Find	5. high	Mon, 6/4/07 8:02 AM
 Find	6. More people, less water and in a drought, that would be compounded	Wed, 5/30/07 1:17 PM
 Find	7. becoming less an issue with decline of agriculture	Wed, 5/30/07 11:19 AM
 Find	8. no impact	Thu, 5/24/07 12:19 PM
 Find	9. No change	Thu, 5/24/07 10:58 AM
 Find	10. economic	Thu, 5/24/07 9:41 AM
 Find	11. High	Thu, 5/24/07 7:36 AM
 Find	12. increased with additional development	Thu, 5/24/07 4:23 AM
 Find	13. Increase	Wed, 5/23/07 3:47 PM
 Find	14. Lessening as agricultural activity diminishes in our area.	Wed, 5/23/07 2:57 PM
 Find	15. More people use more water	Wed, 5/23/07 1:49 PM
25 responses per page		

District 1 On-Line Survey-Impact of Future Development on Earthquake

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











Displaying 1 - 15 of 15 responses

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Comment Text	Response Date
 Find 1. Damage to distribution systems, storage tanks, booster stations, WWTP facility	Thu, 6/21/07 9:40 AM
 Find 2. not much impact	Mon, 6/11/07 12:49 PM
 Find 3. With several towns on fault lines, earthquakes are a major concern of the Red Cross	Thu, 6/7/07 8:20 AM
 Find 4. more people, homes & businesses along fault lines increase potential for damage, death & injury	Wed, 6/6/07 8:19 AM
 Find 5. high	Mon, 6/4/07 8:02 AM
 Find 6. Pretty low here -more houses, more destruction	Wed, 5/30/07 1:17 PM
 Find 7. no developmental impact	Wed, 5/30/07 11:19 AM
 Find 8. Could severely impact routes and methods to transport parts and supplies along HWY 93.	Thu, 5/24/07 12:19 PM
 Find 9. Some increased risk	Thu, 5/24/07 10:58 AM
 Find 10. more people to care for	Thu, 5/24/07 9:41 AM
 Find 11. Higher	Thu, 5/24/07 7:36 AM
 Find 12. increased with additional development near faultlines	Thu, 5/24/07 4:23 AM
 Find 13. No change	Wed, 5/23/07 3:47 PM
 Find 14. Risk will remain with areas of older construction as modern structures built to seismic standards.	Wed, 5/23/07 2:57 PM
 Find 15. More people and buildings means more injury and damage	Wed, 5/23/07 1:49 PM
25 responses per page	

District 1 On-Line Survey-Impact of Future Development on Landslide Hazard

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








Displaying 1 - 12 of 12 responses

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Comment Text		Response Date
 Find	1. not much impact	Mon, 6/11/07 12:49 PM
 Find	2. ?	Thu, 6/7/07 8:20 AM
 Find	3. deforestation increases opportunity for landslides	Wed, 6/6/07 8:19 AM
 Find	4. medium	Mon, 6/4/07 8:02 AM
 Find	5. N a lot of risk -low rainfall -probably not a problem unless some builder gets stupid	Wed, 5/30/07 1:17 PM
 Find	6. improvements of highway could actually mitigate	Wed, 5/30/07 11:19 AM
 Find	7. large exposure due to impact on highway access	Thu, 5/24/07 10:58 AM
 Find	8. keeps going up	Thu, 5/24/07 7:36 AM
 Find	9. stripping vegetation to allow development increases the probability of landslides	Thu, 5/24/07 4:23 AM
 Find	10. N Bange	Wed, 5/23/07 3:47 PM
 Find	11. May increase as hillside development continues	Wed, 5/23/07 2:57 PM
 Find	12. If development is placed on unstable ground there will be more damage	Wed, 5/23/07 1:49 PM
		25 responses per page 

District 1 On-Line Survey-Impact of Future Development on Severe Summer Storms

[close window](#)












Displaying 1 - 11 of 11 responses

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Comment Text		Response Date
 Find	1. lightning strikes impacting power to water and sewer systems. Some generator backup, but not everywhere.	Thu, 6/21/07 9:40 AM
 Find	2. no impact	Mon, 6/11/07 12:49 PM
 Find	3. Global climate change will continue to produce more intense storm cells	Thu, 6/7/07 8:20 AM
 Find	4. medium	Mon, 6/4/07 8:02 AM
 Find	5. Global warming could increase this -more houses, more impacts	Wed, 5/30/07 1:17 PM
 Find	6. No change	Thu, 5/24/07 10:58 AM
 Find	7. will effect more people	Thu, 5/24/07 9:41 AM
 Find	8. more people the hazards go up	Thu, 5/24/07 7:36 AM
 Find	9. No Change	Wed, 5/23/07 3:47 PM
 Find	10. Likely to increase with climate change and expansion of infrastructure to new developments.	Wed, 5/23/07 2:57 PM
 Find	11. More development/people means more opportunities for damage	Wed, 5/23/07 1:49 PM
		25 responses per page

District 1 On-Line Survey-Impact of Future Development on Terrorism Hazard

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







Displaying 1 - 14 of 14 responses

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	Comment Text	Response Date
 Find	1. bw probability due to limited effects on population (size) but possible violent actions to distribution system, booster stations, wells, storage tanks, and sewer lift stations would have severe impact due to limited backup and rerouting.	Thu, 6/21/07 9:40 AM
 Find	2. not much impact	Mon, 6/11/07 12:49 PM
 Find	3. As the population grows and more technological industry is brought to Montana, there may be a growing number of desirable targets for terrorists	Thu, 6/7/07 8:20 AM
 Find	4. any economic center can be the target of terrorists. Ecoterrorism is alive and well in Missoula Qunty.	Wed, 6/6/07 8:19 AM
 Find	5. high	Mon, 6/4/07 8:02 AM
 Find	6. We have the lab and more development makes for better targets for the terooists	Wed, 5/30/07 1:17 PM
 Find	7. violence incidents to increase with population	Wed, 5/30/07 11:19 AM
 Find	8. Increased risk with 2 level 4 labs in the valley 12 miles away	Thu, 5/24/07 12:19 PM
 Find	9. Nchange	Thu, 5/24/07 10:58 AM
 Find	10. could increase	Thu, 5/24/07 9:41 AM
 Find	11. same	Thu, 5/24/07 7:36 AM
 Find	12. Increase	Wed, 5/23/07 3:47 PM
 Find	13. I don't see Missoula as a likely target for terrorism.	Wed, 5/23/07 2:57 PM
 Find	14. Montana is unlikely to be a target of outside terrorism but more development/people may mean more kooks or not	Wed, 5/23/07 1:49 PM
		25 responses per page

District 1 On-Line Survey-Impact of Future Development on Volcanic Eruption Hazard

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





Displaying 1 - 10 of 10 responses

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Comment Text		Response Date
 Find	1. no impact	Mon, 6/11/07 12:49 PM
 Find	2. If the Yellowstone caldera blows we're all going down, and in all seriousness, with the trend in migration westward, such a catastrophe will mean more and more casualties as more folks come to live near the caldera region.	Thu, 6/7/07 8:20 AM
 Find	3. all equal opportunity disaster...	Wed, 6/6/07 8:19 AM
 Find	4. low	Mon, 6/4/07 8:02 AM
 Find	5. not too likely unless Yellowstone blew it's top -more folks would mean more impacts	Wed, 5/30/07 1:17 PM
 Find	6. Unable to determine	Thu, 5/24/07 10:58 AM
 Find	7. none	Thu, 5/24/07 7:36 AM
 Find	8. No Change	Wed, 5/23/07 3:47 PM
 Find	9. Unlikely, but would have widespread and catastrophic result.	Wed, 5/23/07 2:57 PM
 Find	10. Depends on where the eruption is	Wed, 5/23/07 1:49 PM
		10 responses per page

District 1 On-Line Survey-Impact of Future Development on Wildfire Hazard

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














Displaying 1 - 16 of 16 responses

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Comment Text	Response Date
 Find 1. Potential impact to outlying areas of system, but most areas around city of Hamilton are open and not at risk. Potential damage to WWTP from wildfire along river, as well as storage tank on outskirts of city.	Thu, 6/21/07 9:40 AM
 Find 2. high impact with more and more people living in the interface	Mon, 6/11/07 12:49 PM
 Find 3. With warmer years and less snowpack, and a build up of fuels from years of preventative management tactics, we could have some very serious forest fires. With an increase in affluent migrants from other parts of the country building homes on the wildland/urban interface and without much knowledge of Rocky Mountain ecological processes, the elements are in place for serious conflict between fire and people.	Thu, 6/7/07 8:20 AM
 Find 4. more people, homes & businesses encroaching into wooded areas without proper protective measures increases the risk of damage caused by wildfire	Wed, 6/6/07 8:19 AM
 Find 5. high	Mon, 6/4/07 8:02 AM
 Find 6. Potential is high here and with more folks in the interface, more likely to have losses.	Wed, 5/30/07 1:17 PM
 Find 7. encroachment of forest interface = more evac/protection plans	Wed, 5/30/07 11:19 AM
 Find 8. Extreme Impacts with increased population base moving next to forest boundary in WUI areas	Thu, 5/24/07 12:19 PM
 Find 9. Very large increase in exposure	Thu, 5/24/07 10:58 AM
 Find 10. tremendous impact	Thu, 5/24/07 9:41 AM
 Find 11. more people moving to the woods	Thu, 5/24/07 7:36 AM
 Find 12. increased as homes encroach upon wild	Thu, 5/24/07 4:23 AM
 Find 13. Increase	Wed, 5/23/07 3:47 PM
 Find 14. Significant growth is taking place in the wildland urban interface which is a significant hazard in the valley. Zoning is necessary to reduce the risks of this risky development.	Wed, 5/23/07 3:04 PM
 Find 15. Risk increases as development continues in interface areas.	Wed, 5/23/07 2:57 PM
 Find 16. If no efforts are made to require defensible space and fuel reduction/thinning doesn't occur then we will continue to experience the same	Wed, 5/23/07 1:49 PM

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District 1 On-Line Survey-Impact of Future Development on Hazardous Material Incidents

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











Displaying 1 - 15 of 15 responses

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Comment Text		Response Date
 Find	1. Impact to distribution system for water and storm drainage, plus agricultural water district ditches	Thu, 6/21/07 9:40 AM
 Find	2. increased traffic and population will play a role	Mon, 6/11/07 12:49 PM
 Find	3. I think this depends on the fluxuation of the amount of hazardous material transported to or through Missoula and the amount of future development along these corridors	Thu, 6/7/07 8:20 AM
 Find	4. several railroads run through Missoula county and carry a myraid of hazardous materials.	Wed, 6/6/07 8:19 AM
 Find	5. low	Mon, 6/4/07 8:02 AM
 Find	6. More people, more chances of exposure,	Wed, 5/30/07 1:17 PM
 Find	7. increased traffic potential for more occurences	Wed, 5/30/07 11:19 AM
 Find	8. Slight increase	Thu, 5/24/07 10:58 AM
 Find	9. more people to protect	Thu, 5/24/07 9:41 AM
 Find	10. keeps going up	Thu, 5/24/07 7:36 AM
 Find	11. already high in urban areas and along rr tracks	Thu, 5/24/07 4:23 AM
 Find	12. Increase	Wed, 5/23/07 3:47 PM
 Find	13. The Rocky Mountain ab and axo Smith Kne facilities are si tuated in relatively high density area and are concerningly close to the floodplain.	Wed, 5/23/07 3:04 PM
 Find	14. Impact will increase as population densities increase	Wed, 5/23/07 2:57 PM
 Find	15. More development/people means more chemicals and opportunities for exposure	Wed, 5/23/07 1:49 PM
25 responses per page		

District 1 On-Line Survey-Impact of Future Development on Flooding

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















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Comment Text	Response Date
 Find 1. low chance of flooding in Bitterroot, possible impact to WWTP, but low probability	Thu, 6/21/07 9:40 AM
 Find 2. not much impact	Mon, 6/11/07 12:49 PM
 Find 3. As long as development continues to be restricted along floodplain areas, this shouldn't be a huge issue. Our main concern is losing a bridge that may strand a community like Hamilton	Thu, 6/7/07 8:20 AM
 Find 4. more people, homes & businesses within the 100 year flood plain increases opportunity for life & property loss	Wed, 6/6/07 8:19 AM
 Find 5. high	Mon, 6/4/07 8:02 AM
 Find 6. Pretty low here - need to stay out of the flood plain	Wed, 5/30/07 1:17 PM
 Find 7. require more resources	Wed, 5/30/07 11:19 AM
 Find 8. Possible loss of bridges connecting small rural community with larger areas - Missoula and Hamilton	Thu, 5/24/07 12:19 PM
 Find 9. Significant increase in exposure	Thu, 5/24/07 10:58 AM
 Find 10. more damage to life and property	Thu, 5/24/07 9:41 AM
 Find 11. people building in low lying areas	Thu, 5/24/07 7:36 AM
 Find 12. increased with additional development in flood plains	Thu, 5/24/07 4:23 AM
 Find 13. No Change	Wed, 5/23/07 3:47 PM
 Find 14. Uncontrolled development in floodplains and dam inundation areas will critically disrupt routine activities and could result in many casualties.	Wed, 5/23/07 3:04 PM
 Find 15. Risk will increase as more structures are built in flood prone areas.	Wed, 5/23/07 2:57 PM
 Find 16. More people living near the water means more damage from floods and dam failure	Wed, 5/23/07 1:49 PM
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District 1 On-Line Survey-Impact of Future Development on Severe Winter Weather

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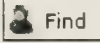






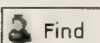

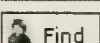
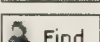
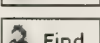
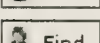
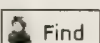
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Go >>

Comment Text	Response Date
 Find 1. Impacts to WWTP likely if storm is severe. Extreme low temperatures could affect lift stations, pumps, and distribution lines, plus possible power outages.	Thu, 6/21/07 9:40 AM
 Find 2. May become less prevalent in the valleys with global warming	Fri, 6/15/07 9:31 AM
 Find 3. no impact	Mon, 6/11/07 12:49 PM
 Find 4. While our climate is warming, the capacity for more intense winter storms is also there. It seems as though these storms are mainly dropping snowfall at elevations above the Missoula valley floor, climate seems unpredictable at this juncture. With our limited highway system in Montana, if I-90 is impassable to Alberton, those Mineral County population centers could be stranded.	Thu, 6/7/07 8:20 AM
 Find 5. medium	Mon, 6/4/07 8:02 AM
 Find 6. Not a big problem here - more winter users might make for more problems.	Wed, 5/30/07 1:17 PM
 Find 7. more recreationist in danger zones/ increase SAR responses	Wed, 5/30/07 11:19 AM
 Find 8. Can have impacts with loss of power and no backup heat or food sources available.	Thu, 5/24/07 12:19 PM
 Find 9. Some increased risk	Thu, 5/24/07 10:58 AM
 Find 10. will effect more people	Thu, 5/24/07 9:41 AM
 Find 11. globe warming will change this	Thu, 5/24/07 7:36 AM
 Find 12. No Change	Wed, 5/23/07 3:47 PM
 Find 13. Impact will increase with new construction and expansion of infrastructure to new developments.	Wed, 5/23/07 2:57 PM
 Find 14. Big enough storms will drive the weak of heart back home.	Wed, 5/23/07 1:49 PM
25 responses per page	

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Projects

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Deer Lodge County

Medium Priority

- Install generators to maintain water services and waste water treatment.
- Designate a location for the Anaconda-Deer Lodge Emergency Operations Center.

Flathead Reservation

High Priority

- Provide training to first responders.
- Recruit EMT volunteers through public outreach.

Granite County

Medium Priority

- Develop evacuation plans for the communities.

Lake County

High Priority

- Recruit EMT volunteers through public outreach.
- Provide training to first responders.

Mineral County

Low Priority

- Provide generators for essential facilities to ensure operations during power disruption.
- Develop program for affected communities/vulnerable populations to acquire generators during power failures.
- Mapping and location of potential egress routes from communities during disasters.

Missoula County

Medium Priority

- Install weather stations on Deer Mountain and Point 118 (completed).

Powell County

High Priority

- Provide back-up power generation for Powell County Sheriff's Office and County Jail.
- Upgrade back-up power generation for the Powell County Hospital and Nursing Home.

Ravalli County

Medium Priority

- Assess countywide ingress/egress conflicts related to hazard responsiveness and evacuations.

Sanders County

High Priority

- Provide training to first responders.
- Recruit EMT volunteers through public outreach.
- Install/construct an EOC

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Deer Lodge County

Medium Priority

- Put NOAA Weather Radios in critical facilities and schools.

Flathead Reservation

High Priority

- Enhance NOAA broadcasts to include Reservation boundary.
- Move antennae's, towers and repeaters from Oliver Point to Jette Hill for year-round accessibility.
- Provide weather radios for various critical facilities.
- Install or construct an EOC.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Granite County

Medium Priority

- Put NOAA Weather Radios in critical facilities and schools.
- Place a NOAA Weather Radio Transmitter in Philipsburg.

Lake County

High Priority

- Provide weather radios for various critical facilities.
- Install/construct an EOC.
- Move antennas, towers and repeaters from Oliver Point to Jette Hill for year-round accessibility.
- Enhance NOAA broadcasts to include county boundary.

Mineral County

Low Priority

- Additional cell towers to improve cellular communication.
- Evaluation of possible communications systems that can effectively reach all portions of the County.

Missoula County

High Priority

- Implement reverse 911 capabilities.

Medium Priority

- Upgrade EAS System for all hazard warning/communication by installing EAS encoder/decoder in 911 dispatch (in progress).
- Implement enhance 911 capabilities (completed).
- Install NOAA weather radios in public buildings and other appropriate locations.

Ravalli County

Medium Priority

- Implement reverse 911 and enhanced 911 capabilities.
- Upgrade EAS System for all hazard warning/communication by installing EAS encoder/decoder in 911 dispatch.

Sanders County

High Priority

- Provide weather radios for various critical facilities.
- Enhance NOAA broadcasts to include County boundary.

Silver Bow County

Medium Priority

- Put NOAA Weather Radios in the schools.
- Create a dedicated phone system for parent information on school evacuations.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Mineral County

Low Priority

- Education on safe egress from communities during disasters.
- Information about the potential hazards that can affect the community.

Missoula County

Medium Priority

- National Weather Service to provide weather education presentations and tours to educate the public on weather hazards.
- Targeted education and information to public officials on fuel mitigation and general hazard mitigation.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Ravalli County

Medium Priority

- National Weather Service to provide weather education presentations and tours to educate the public on weather hazards.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Deer Lodge County

Medium Priority

- Develop GIS data that can be used with FEMA's HAZUS loss estimated models.
- Train Anaconda-Deer Lodge County Department heads and engineers in hazard mitigation.

Granite County

Medium Priority

- Develop GIS data that can be used with FEMA's HAZUS loss estimation models.

Mineral County

Low Priority

- Mapping and locations of each residence within the County.
- Mapping locations of all residences within the County.

Missoula County

Medium Priority

- Assess model regulations in other counties to ensure hazard mitigation is continuous and ongoing.

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Deer Lodge County

Medium Priority

- Develop dry hydrant water supplies in wildland/urban interface areas.
- Upgrade hydrants in the east end of Anaconda.

Flathead Reservation

High Priority

- Provide additional training to fire fighters.

Granite County

Medium Priority

- Develop dry hydrant water supplies in the Georgetown Lake area.

Lake County

High Priority

- Provide additional training to fire fighters.
- Obtain 26-30 foot all-hazard boat with fire fighting unit capable of rescue evacuation for Flathead Lake/Island residents.

Lincoln County

High Priority

- Identify areas with high number of fire starts and inadequate suppression equipment.
- Provide for shared database between fire suppression agencies on road closures, water sources, fuel ratings, district boundaries, ignition hazards and railroads.
- Develop water storage capability and water supply sites to enhance fire-fighting capability.
- Improve fire agency infrastructure (training facility; additional fire equipment storage; enhanced communications systems).

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Powell County

Medium Priority

- Construct an additional 15 dry fire hydrants in the County.

Sanders County

High Priority

- Provide additional training to fire fighters.

Silver Bow County

Medium Priority

- Promote sprinkler system installation in older commercial structures.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Deer Lodge County

Medium Priority

- Promote sprinkler installations in older commercial structures.
- Encourage homeowners to reduce fuels around structures and create a fire defensible space.

Granite County

Medium Priority

- Encourage homeowners to reduce fuels around structures and create a fire defensible space.
- Reduce fuels in the Maxville Highway 1 corridor.

Lincoln County

High Priority

- Institute fuel control activities, such as thinning and fire breaks, particularly near more highly populated areas.
- Support alternative methods to burning when reducing fuel hazards, such as chipping and harvest.
- Institute weed control measures (mowing) around towns.

Mineral County

High Priority

- Implement fuel mitigation projects as designated in the Community Fire Plan.
- Encourage/support fuel mitigation projects in federal lands.

Medium Priority

- Encourage/provide financial incentive for fuel reduction around homes.

Missoula County

High Priority

- Fuel mitigation projects throughout the County identified in Community Fire Plan.

Medium Priority

- Encourage fuel reduction around homes in Wildland Residential Interface.
- Encourage/support fuel mitigation projects in federal lands near Wildland Residential Interface areas.
- Develop guidance/rules for maintaining defensible space around existing structures in Wildlife Residential Interface.

Ravalli County

High Priority

- Complete fuel mitigation projects as identified and prioritized in the Community Fire Plan.

Medium Priority

- Develop guidance/rules for maintaining defensible space around existing structures in Wildland Urban Interface.

Silver Bow County

Medium Priority

- Promote USFS fuels reduction in the Basin Creek watershed.
- Expand existing hazard fuels reduction programs to other wildland-urban interface areas.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Flathead Reservation

High Priority

- Formulate community awareness projects that instill Firewise practices.

Lake County

High Priority

- Formulate community awareness projects that instill Firewise practices.

Lincoln County

High Priority

- Educate landowners about alternatives to burning slash such as chipping or community dump.
- Promote "fire wide" education efforts in communities and schools.

Mineral County

Medium Priority

- Provide/prepare educational material to inform public about wildfire risks.

Sanders County

High Priority

- Formulate community awareness projects that instill Firewise practices.

OBJECTIVE 3.4 - Accurately assess and address the current wildland urban interface problems at the subdivision level.

Deer Lodge County

Medium Priority

- Adopt the Uniform Fire Code for the wildland/urban interface areas.
- Revise subdivision regulations with a better focus on defensible space/maintenance requirements in the wildland/urban interface.

Flathead Reservation

High Priority

- Work with federal, state and groups studying effects on wildfire at urban interface.

Granite County

Medium Priority

- Revise subdivision regulations with a better focus on defensible space/maintenance requirements in the wildland/urban interface.
- Conduct individual WUI wildfire assessments.

Lake County

High Priority

- Work with federal, state and groups studying effects on wildfire at urban interface.

Missoula County

Medium Priority

- Revise subdivision regulations to require sufficient fire suppression water supplies for subdivisions in Wildlife Residential Interface.

Powell County

Medium Priority

- Participate with the BLM to provide cost-share funds to residents to fire proof their homes.

Ravalli County

Medium Priority

- Revise subdivision regulations to require sufficient fire suppression water supplies for subdivisions in Wildland Urban Interface.

Sanders County

High Priority

- Work with federal, state and groups studying effects on wildfire at urban interface.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Flathead Reservation

High Priority

- Obtain 26-30 foot all-hazard boat with fire fighting unit capable of rescue evacuation for Flathead Lake/island residents.
- Provide egress/ingress to roads land-locked in event of wildfire.

Granite County

Medium Priority

- Improve ingress/egress options in existing subdivisions.

Lake County

High Priority

- Provide egress/ingress to roads land-locked in event of wildfire.

Lincoln County

High Priority

- Use enhance 911 inventory to identify residences and critical infrastructure.

Mineral County

High Priority

- Develop safe ingress/egress routes for homes in the WUI.

Medium Priority

- Encourage greater initial response and active night time fighting of wildland fires.
- Training of local officials to effectively coordinate evacuation.

Sanders County

High Priority

- Provide egress/ingress to roads land-locked in event of wildfire.

OBJECTIVE 3.6 - Establish mapping or record keeping practices to support fuel management strategies.

Mineral County

Medium Priority

- Map/locate structures in wildland/urban interface.

Missoula County

Medium Priority

- Identify/map areas with heavy fuels near populated areas.
- Promulgate ordinances/resolutions requiring that structures be geo-referenced.
- Promulgate ordinances/resolutions requiring addresses for all new parcels created through subdivision or other means.
- Promulgate ordinances/resolutions requiring addresses for all existing parcels.
- Map/locate structures in wildland/residential interface.

Powell County

Medium Priority

- Realign fire district boundaries so the entire County is covered by a Fire District.

Silver Bow County

Medium Priority

- Support the Butte Fire Protection Association in expanding a wildland fire management committee consisting of Silver Bow, state and federal departments with a wildland-urban interface to coordinate planning, training, prevention and suppression.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Flathead Reservation

High Priority

- Institute communications system with local radio stations informing land owners of seasonal floods.

Lake County

High Priority

- Institute communications system with local radio stations informing land owners of seasonal floods.

Mineral County

Medium Priority

- Training of local officials to effectively coordinate evacuations.

Missoula County

Medium Priority

- Encourage use of NOAA weather radios to residences in hazardous areas subject to flooding or mudslides (completed).
- Install river gauge with telemetry below east fork of Rock Creek to notify downstream communities of flood surges.

Ravalli County

Medium Priority

- Install siren warning systems in campgrounds below Painted Rocks and Como Lake.
- Install river gauge with telemetry above and below Painted Rocks and Lake Como to identify potential breach/flood surge.

Sanders County

High Priority

- Institute communications system with local radio stations informing land owners of seasonal floods.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Missoula County

High Priority

- Adopt regulations enforcing no-build zones in floodplains and flood prone zones.

Medium Priority

- Require floodplain modeling for all subdivisions in unmapped drainages.
- Revise subdivision regulations to assess groundwater flooding potential.

Ravalli County

Medium Priority

- Modify subdivision regulations to require floodplain modeling for all new subdivisions in unmapped drainages.

Silver Bow County

Medium Priority

- Educate builders on building specifications and floodplain building requirements.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Deer Lodge County

Medium Priority

- Install storm drains in areas where they are lacking in the west end of Anaconda.
- Mitigate damages to critical facilities in the 100-year floodplain.
- Prevent flood contamination of well houses serving the Anaconda public water system.
- Install culverts and raise roadbed on North Fork Road off the Big Hole Highway from Bacon's Home Ranch to the county line.
- Relocate and upgrade culverts on Morrel Road from the Old Opportunity landfill to Gas City Road.
- Install backflow prevention systems from the Anaconda waste water facility.
- Upgrade and maintain storm drains from Fourth Street to the smelter.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Deer Lodge County

Medium Priority

- Replace bridge in Galen.
- Clear debris from around old bridges.

Flathead Reservation

Medium Priority

- Replace deteriorated bridges on Little Bitterroot, Jocko, Flathead River and Boulder Creek to withstand heavy rain/melting snow.

Granite County

Medium Priority

- Increase the capacity of the downtown Philipsburg storm drain for Camp Creek to prevent Broadway Street flooding.
- Increase the capacity of the Sansome Street culvert in Philipsburg on Frost Creek.
- Increase the capacity of the culvert under Highway 10A in Drummond.

Lake County

Medium Priority

- Replace deteriorated bridges on Little Bitterroot, Jocko, Flathead River and Boulder Creek to withstand heavy rain/melting snow.

Lincoln County

Medium Priority

- Complete engineering evaluation of additional flood control measures within 100-year flood plain in Libby and other identified flood prone areas.
- Improve roads and road drainage to withstand flood flows in selected areas.
- Evaluate bridges and culverts at risk from flooding and develop schedule and funding to replace or upgrade as necessary.

Mineral County

Medium Priority

- Ensure water supplies are protected from bacterial contamination after flooding events.
- Debris removal from culverts in developed areas.

Low Priority

- Build community sewer systems for subdivisions with septic systems located in the 100 year floodplain.

Missoula County

High Priority

- Construction of Grant Creek Flood Control and Restoration Project.

Medium Priority

- Improve dike system along the Clark Fork River near 3rd and Tower Street.
- Assess feasibility of explosives for breaking up ice jams.
- Identify critical access bridges and evaluate potential for damage from debris.
- Require all floodplain modeling projects to analyze February/March runoff and spring runoff event.
- Complete structural analysis of bridges in County that have a low scour potential index.

Powell County

High Priority

- Replace two bridges on Cottonwood Creek with structures having a capacity of 950 CFS.
- Facilitate funding for the State of Montana to replace the Main Street bridge.
- Expand particular portions of the Cottonwood Creek channel to accommodate a flow of 950 cfs.
- Acquire 6-8 structures to accommodate the Cottonwood Creek channel expansion.
- Construct a flood channel around the City of Deer Lodge to accommodate 200-250 cfs of flood flow.
- Construct a debris basin and water control structure to route the appropriate amount of flood water down Cottonwood Creek and down the flood channel around the City of Deer Lodge.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Powell County

Medium Priority

- Reconstruct East Side Road and install adequate cross drain structures.
- Reshape and provide drainage structures on Bismark Hill Road to prevent water from running down the road and cause flooding along Taylor Creek.
- Replace nine County bridges which have a hydraulic sufficiency rating of 4 or less.

Ravalli County

High Priority

- Complete floodplain/flood prone area delineation on all urban/developed streams.
- Identify critical access bridges and evaluate potential for damage from debris.

Medium Priority

- Revise subdivision regulations to assess groundwater flooding potential.
- Revise probably maximum flood projections for Painted Rocks and Lake Como based on enhanced digital elevation models and improved flood modeling software.
- Complete structural analysis of bridges in County that have a low scour potential index.
- Require all floodplain modeling projects to analyze February/March runoff and spring runoff events.

Silver Bow County

Medium Priority

- Increase stormwater systems in poor drainage areas.
- Install culverts in areas where water runoff is needed.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Deer Lodge County

Medium Priority

- Educate the public on flood insurance.

Flathead Reservation

High Priority

- GPS homes along Flathead and Little Bitterroot rivers.

Granite County

Medium Priority

- Educate the public on flood insurance.

Lake County

High Priority

- GPS homes along Flathead and Little Bitterroot River.

Lincoln County

Medium Priority

- Obtain and disseminate revised flood plain mapping to increase knowledge of flood prone areas.

Mineral County

Medium Priority

- More detailed floodplain delineation in areas of frequent flooding (St. Regis).

Sanders County

High Priority

- GPS homes along Flathead and Clark Fork River.

Silver Bow County

Medium Priority

- Educate the public on flood insurance.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Deer Lodge County

Medium Priority

- Implement security measures at the dams.

Missoula County

Medium Priority

- Improve the dike system along the Bitterroot River near Lolo.

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Deer Lodge County

Medium Priority

- Become a National Weather Service Storm Ready County.
- Develop a sheltering plan specifically for utility outages.
- Install generators at elder care facilities.

Flathead Reservation

Medium Priority

- Provide emergency generators to hospitals, EOC, jail, rest homes and Tribal Health.

Granite County

Medium Priority

- Become a National Weather Service Storm Ready Community.
- Install generators at critical facilities, especially the Sheriff's office/911 center.
- Develop a sheltering plan specifically for utility outages.
- Encourage the electric companies to improve maintenance of and around power lines and substations.

Lake County

Medium Priority

- Provide emergency generators to hospitals, EOC, jail, rest homes.

Mineral County

Medium Priority

- Install additional early warning weather stations to predict hazardous weather conditions.

Missoula County

Medium Priority

- Install road sensors in key urban roads to identify freezing/dangerous road conditions.
- Identify public buildings by building type that may be susceptible to structural failures from heavy snow loads.
- Install webcams in key locations on urban roads to facilitate real-time identification of hazardous road conditions.

Ravalli County

Medium Priority

- Identify public buildings by building type that may be susceptible to structural failures from heavy snow loads.

Sanders County

Medium Priority

- Provide emergency generators to hospitals, EOC, jail and rest homes.

Silver Bow County

Medium Priority

- Work with special needs populations on alternative heating systems.
- Coordinate with volunteer agencies on sheltering in difficult weather conditions.
- Develop disaster supply kits for special needs facilities.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Mineral County

Medium Priority

- Develop educational materials regarding snow loads on roofs and safe removal.

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.2 - Increase public awareness of ways to mitigate summer weather hazards.

Missoula County

Medium Priority

- Disseminate information to public on reducing property damage from high winds.

Ravalli County

Medium Priority

- Disseminate information to public on reducing property damage from high winds.

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Deer Lodge County

Medium Priority

- Establish a back emergency exit from Montana State Hospital.

Flathead Reservation

Medium Priority

- Provide HAZMAT training and software to emergency managers.

Lake County

Medium Priority

- Provide HAZMAT training and software to emergency managers.

Lincoln County

Low Priority

- Improve training of first responders.
- Improve emergency communications network throughout the county.

Mineral County

Low Priority

- Conduct training exercises for hazardous material spills from both railroad and highway transport.

Sanders County

Medium Priority

- Provide HAZMAT training and software to emergency managers.

Silver Bow County

High Priority

- Educate teachers and school staff in schools near hazardous materials facilities and transportation routes in how to limit exposure to hazardous materials to students during an incident.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Deer Lodge County

Medium Priority

- Protect the exposed natural gas lines near Warm Springs.

Flathead Reservation

High Priority

- Replace 1939 vintage pumping plant on Flathead River.
- Secure bulk petroleum and propane tanks with fencing.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Flathead Reservation

Medium Priority

- Recontour Skyline Drive and provide new guard rail.
- Work with neighboring counties to discontinue dumping tires on Tribal land.
- Install fencing and alarm system at water treatment plant and water supply wells.

Granite County

Medium Priority

- Place highway barriers along Interstate 90 in Drummond.

Lake County

High Priority

- Secure bulk petroleum and propane tanks with fencing.

Medium Priority

- Recontour Skyline Drive and provide new guard rail.

Mineral County

Low Priority

- Improve 25 mph railroad curves near Superior.
- Examine high accident rates on Interstate 90 and work with MDT to reduce the hazards causing truck accidents and hazardous material spills.
- Ensure fixed facilities have toxic release plans that identify hazards and potential exposed areas in the event of a release.
- Obtain regular reports from MRL on the hazardous material flow through the County.

Powell County

Low Priority

- Monitor the hauling of contaminated sediments through Powell County.
- Provide adequate and legal egress for residents of Elliston & Garrison should a train derailment block their escape routes.

Sanders County

High Priority

- Secure bulk petroleum and propane tanks with fencing.

Medium Priority

- Install fencing and alarm system at water treatment plant and water supply wells.
- Work with CSKT to discontinue dumping tires on county land.

OBJECTIVE 8.3 - Support hazardous materials regulations and agreements.

Mineral County

Medium Priority

- Cooperative agreements with MRL and County to ensure rail lines are effectively inspected and maintained.

GOAL 9 - Reduce potential earthquake losses in seismically prone areas.

OBJECTIVE 9.2 - Educate the public in earthquake mitigation and readiness.

Deer Lodge County

Medium Priority

- Conduct earthquake drills in schools.

Granite County

Medium Priority

- Conduct earthquake drills in the schools.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 9 - Reduce potential earthquake losses in seismically prone areas.

OBJECTIVE 9.2 - Educate the public in earthquake mitigation and readiness.

Silver Bow County

Medium Priority

- Educational awareness for students on earthquake safety.
- Educational awareness for the general public on the earthquake hazard.
- In-depth fault study and digital mapping.
- Create policies for where structures can and cannot be built based on the hazard information.

OBJECTIVE 9.3 - Seismically retrofit existing critical facilities/infrastructure and government assets.

Deer Lodge County

Medium Priority

- Retrofit critical government facilities for earthquakes.
- Educate home and business owners on simple earthquake retrofits.
- Survey commercial structures for earthquake stability and recommend retrofits.

Granite County

Medium Priority

- Retrofit critical government facilities for earthquakes.
- Educate home and business owners on simple earthquake retrofits.
- Survey commercial structures for earthquake stability and recommend retrofits.

OBJECTIVE 9.4 - Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards.

Deer Lodge County

Medium Priority

- Tie down/secure objects in schools that could fall during an earthquake.
- Seismically stabilize large glass panes in Dwyer Primary School and Anaconda High School.
- Inspect key bridges for seismic stability.

Granite County

Medium Priority

- Inspect key bridges for seismic stability.
- Tie down/secure objects in schools that could fall during an earthquake.

Silver Bow County

Medium Priority

- Using shatter-proofing techniques, strengthen windows in schools.
- Tie down/secure objects in schools that could fall during an earthquake.

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Deer Lodge County

Medium Priority

- Educate public on communicable disease.

Flathead Reservation

Medium Priority

- Investigate mitigation options for West Nile Virus.

Granite County

Medium Priority

- Create a public education communicable disease prevention program.

Lake County

Medium Priority

- Investigate mitigation options for West Nile Virus.

LOCAL MITIGATION PROJECTS

DES DISTRICT 1

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Sanders County

Medium Priority

- Investigate mitigation options for West Nile Virus.

GOAL 11 - Encourage mitigation of potentially devastating but historically less frequent hazards.

OBJECTIVE 11.1 - Prevent losses from acts of terrorism, violence and civil unrest.

Lake County

High Priority

- Replace 1939 vintage pumping plant on Flathead River.

Medium Priority

- Install fencing and alarm system at water treatment plant and water supply wells.

Silver Bow County

Medium Priority

- Implement security systems in schools.
- Educate nursing home operators and residents on physical security.
- Implement security systems in hospitals.

OBJECTIVE 11.2 - Identify and reduce potential losses from landslides and avalanches.

Silver Bow County

Medium Priority

- Create a landslide/avalanche technical committee.
- Implement a recommendation system for development near landslide areas.

Low Priority

- Study potential landslide areas on and near private lands in more detail.



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

APPENDIX C

DISTRICT 2 DOCUMENTATION

Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Projects

NORTH-CENTRAL MONTANA JURISDICTIONS

Blackfeet Reservation
Blaine County
Cascade County
Chouteau County
Fort Belknap Reservation
Glacier County
Hill County
Liberty County
Pondera County
Rocky Boy's Reservation
Teton County
Toole County

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/14/07

LOCATION: Out Bank - District 2

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
John J. Fisher	Browning Fire Dept. / Senior Fireman	64	flaminifisher@yahoo.com
Cameron Boggs Jr.	Browning Fire Dept. / Senior Fireman	64	Boggs@yahoo.com
Patrick Steward	Bobbs/Mary V.F.D.	75	bobbsmaryvfcd@stakeband.net
Jim King	Glacier County D.E.S.	2	jimking@netnet.net
Bobson	Center for Mental Health	4	dbaron5947@yahoo
Laura Christians	DPHHS / Child and Family Services	12	christians61net.gov
Patty Haer	Hi-Line Red. Acting Director	100	tlerec@bresnan.net
Damon Bunting	Glacier County Extension Mental Health	2	dbunting@montana.edu
Maureen R. Crane	Case Mgr. - Center	1	
Arrica Lieberth	Case Manager - Mental Health Center	1	
Daphne Digrindakis	Tetra Tech		daphne.digrindakis@tetra-tech.com
James Laidlaw	Glacier County EMS	1	chief@glacierems.com

Meeting State Time: 1:00 pm

Meeting End Time: 3:00 pm

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/15/07

LOCATION: Havre - District 2

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digrindakis	Tetra Tech		daphne.digrindakis@tetratech.com
Harkey Gustitis	Blaine Co DES	40 miles	hgustitis@co.blaine.mt.gov
Vic Miller	Blaine County Commissioner	40 miles	VMiller@co.blaine.mt.gov
LARRY B. AKERS	TETRA TECH	300 miles	alpha6@ixi.net
SHARON L. LAVEN	MSU - NORTHERN	6 miles	CAVEN@msu.edu
SUSAN SWAN	MSU - NORTHERN	6 MILES	SWANSO@MSU.EDU
Jerry Otto	Road Supervisor	1000 feet	Hillco 1405@hotmail.com
Clay Vincent	Health Sanitation	6 mi	vincentc@co.hill.mt.us
Michael Wendland	Commissioner		
Ron Knudson	DES	2	Knudsonr@co.hill.mt.us
Kathy Bessette	Hill County Commission	20 miles	bessettek@co.hill.mt.us
Jan Nugent	Hill co. SAR	1 mile	Nugent@co.hill.mt.us

Meeting State Time: 1100

Meeting End Time: 1030pm

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/15/07

LOCATION: Havre-Distriet 2

[illegible]

Meeting State Time: 11:00 aw

Meeting End Time: 1:15 pm



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Monday, March 14, 2007

Time: 1:00 pm – 3:00 pm

Place: Cut Bank, Montana

Meeting Attendance:

JoVon J. Fisher, Browning Fire Department Senior Fireman
Cameron Boggs Jr., Browning Fire Department Senior Fireman
Patrick Stranad, Babb/St. Mary Volunteer Fire Department
Jim King, Glacier County DES
D. Baron, Center for Mental Health
Laura Christiaens, DPHHS/Child and Family Services
Patty Geer, Acting Director Hi-Line Recreation
Damon Burtin, Glacier County Extension Office
Laurine R. Crane, Case Manager - Mental Health Center
Amica Ziebarth, Case Manager - Mental Health Center
James Laidlaw, Glacier County EMS
Kent Atwood, State of Montana – DES
Larry Akers, Contractor
Daphne Digrindakis, Contractor

ASSESSMENT OF HAZARDS – DISTRICT 2

Drought

Glacier – High
Toole – High
Liberty – High
Hill – Change from Low to High
Blaine – Change from Low to High
Pondera – High
Teton – Medium
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – Change from Medium to High (Polson meeting)
Rocky Boy's Reservation – Change from Low to High
Fort Belknap Reservation - Change from Low to High

Participants questioned why the Blackfeet Reservation has a medium risk rating when Glacier County has a high risk rating. Some felt the medium rating was accurate as the west side of Glacier County receives more moisture than the east side which is in the rain shadow of the Rocky Mountains.

It was also suggested that Hill and Blaine counties and the Rocky Boy's and Fort Belknap reservations have their risk rating upgraded from low to high.

Earthquake

Glacier – Low
Toole – Low
Liberty – Not Assessed
Hill – Low
Blaine – Low
Pondera – Low
Teton – Change from Medium to Low
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – Low
Rocky Boy's Reservation – Low
Fort Belknap Reservation – Low

Participants suggested that Teton County should have a low risk rating for an earthquake rather than medium risk.

Flood

Glacier – High
Toole – High
Liberty – Medium
Hill – High
Blaine – High
Pondera – Change from High to Medium (Polson meeting)
Teton – High
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – High
Fort Belknap Reservation – Low

Participants discussed the medium risk rating for Liberty County and asked if this rating was still accurate. It was concluded that the medium rating was probably correct.

Hazardous Material Incident

Glacier – Change from Not Assessed to Medium
Toole – Change from Low to Medium
Liberty – Medium
Hill – Medium
Blaine – Medium
Pondera – Not Assessed
Teton – Not Assessed
Choteau – No approved plan

Cascade – No approved plan
Blackfeet Reservation – Medium
Rocky Boy's Reservation – Low
Fort Belknap Reservation – Medium

Participants suggested that Glacier County should be at medium risk for Hazardous Material Incidents as Highway 2 and the railroad run through the county. Toole County should also be upgraded to medium as this county has Interstate 15, Highway 2 and railroad transportation corridors.

Landslide

Glacier – Low
Toole – Not Assessed
Liberty – Not Assessed
Hill – Not Assessed
Blaine – Not Assessed
Pondera – Low
Teton – Low
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – Change from Not Assessed to Low
Rocky Boy's Reservation – Not Assessed
Fort Belknap Reservation – Not Assessed

Participants discussed that the low risk rating for Glacier County is probably accurate; however, a few spots near Glacier National Park were noted as exceptions. The Blackfeet Reservation should also be changed from not assessed to low risk for landslides.

Severe Thunderstorms, Hail, Wind and Tornadoes

Glacier – High
Toole – High
Liberty – High
Hill – High
Blaine – High
Pondera – High
Teton – Change from Medium to High
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – Change from Medium to High
Fort Belknap Reservation – Change from Medium to High

Discussion suggested that Rocky Boy's and Fort Belknap reservations be upgraded from medium to high risk for severe weather as the corresponding counties of Hill and Blaine

have high risk ratings. Teton County is also rated as medium whereas the surrounding counties are rated as high risk.

Terrorism and Violence

Glacier – Change from Not Assessed to Medium

Toole – Not Assessed

Liberty – Not Assessed

Hill – Medium

Blaine – Medium

Pondera – Not Assessed

Teton – Low

Choteau – No approved plan

Cascade – No approved plan

Blackfeet Reservation – Low

Rocky Boy's Reservation – Low

Fort Belknap Reservation – Low

Participants questioned why Glacier, Toole, Liberty and Pondera counties did not assess this hazard considering the international boundary. It was suggested that Glacier County upgrade to medium risk as the boundary and Glacier National Park are within this county.

The hazard discussion also questioned if terrorism and violence should be split into separate hazards. Glacier County did not assess Terrorism and Violence since the county has no violence in its history. Consequently, terrorism in Glacier County was rated as medium but violence was rated as low. Other terrorist activities could include arson resulting in wildfires and the destruction of dams that would result in inundation flooding.

Volcanic Eruption

Glacier – Low

Toole – Low

Liberty – Not Assessed

Hill – Not Assessed

Blaine – Not Assessed

Pondera – Low

Teton – Not Assessed

Choteau – No approved plan

Cascade – No approved plan

Blackfeet Reservation – Not Assessed

Rocky Boy's Reservation – Not Assessed

Fort Belknap Reservation – Not Assessed

Risk discussion concluded that low ratings were appropriate. Possible ashfall from the Cascade Mountains was noted and the Yellowstone Caldera was cited as a low hazard.

Wildfire

Glacier – High
Toole – High
Liberty – High
Hill – High
Blaine – High
Pondera – High
Teton – High
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – High
Fort Belknap Reservation – High

Participants suggested no changes for the Wildfire hazard.

Winterstorms

Glacier – High
Toole – High
Liberty – High
Hill – High
Blaine – High
Pondera – High
Teton – Medium
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – High
Fort Belknap Reservation – High

Participants suggested no changes for the Winterstorms hazard.

ASSESSMENT OF STATE GOALS – DISTRICT 2

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

It was suggested that Browning (Willow Creek) and sheet flow flood problem could generate a PDMC project for the Blackfeet Reservation. Additionally, dam failure is an issue for the Blackfeet Reservation and Glacier County. The Swift Dam (Birch Creek), owned by the Bureau of Reclamation, needs an early warning system. Sherburne Dam may also need an early warning system.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

The Blackfeet Reservation has many wildfire mitigation projects that are still viable.

Glacier County has projects that promote best management practices for crop and rangeland, and the development of defensible space around buildings.

Goal 5: Reduce potential earthquake losses in Western Montana.

Glacier County has tie down, shatterproof window film and earthquake awareness projects. These projects are also viable for windstorm damage and violence (i.e., kids throwing rocks against school windows).

Goal 6: Minimize economic impacts of drought.

Blackfeet Reservation has two drought projects and Glacier County has one that concerns the improvement of water intake.

Goal 7: Reduce impacts from severe winter weather.

Blackfeet Reservation has many viable winterstorm projects. Glacier County has several projects; however, none were identified as necessary.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

OTHER COMMENTS

The counties suggested that an e-mail with updated hazard ratings be sent to DES County/Tribal Coordinators. The coordinators would present changes for approval during LEPC and TERC meetings.

Counties see a difference in PDM plans written by counties and tribes versus contractors in that counties/tribes more accurately portray their risks. This may indicate a lack of communication between the public and contractors.

For Glacier County, the Severe Thunderstorms, Hail, Wind and Tornadoes hazard and the Winterstorm hazard are tied for the top goal. These hazards need to be recognized as separate hazards. Drought and Wildfire hazards are tied for second on the goal list.

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Monday, March 15, 2007

Time: 11:03 am – 1:18 pm

Place: Havre, Montana

Meeting Attendance:

Haley Gustitis, Blaine County DES
Vic Miller, Blaine County Commissioner
Sharon L. Caven, MSU-Northern
Susan Swan, MSU-Northern
Jerry Otto, Hill County Roads Supervisor
Clay Vincent, Hill County Health Sanitation
Michael Wendland, Commissioner Hill County
Ron Knudson, Hill County DES
Kathy Bessette, Hill County Commission
Paul Nugent, Hill County SAR
Jamieson Ross, Hill County Sheriff
Kent Atwood, State of Montana – DES
Larry Akers, Contractor
Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 2

Meeting Discussion on Hazards Affecting District 2

Possible addition of Biological and Communicable Disease hazard. This could take the form of animal and/or human virus and bacteria. This hazard could destroy the entire economy of Hill County. Some examples are hoof and mouth disease, brucellosis, SARS, bird flu, West Nile virus and chronic wasting disease.

Possible addition of radiological hazard. There is a lot of oil and gas drilling and usage, storage and disposal of radiological material in the district. This could be included in the Hazardous Material Incident hazard.

ASSESSMENT OF HAZARDS – DISTRICT 2

Drought

Glacier – High

Toole – High

Liberty – High

Hill – Change from Low to High

Blaine – Change from Low to High

Pondera – High

Teton – Medium

Choteau – No approved plan

Cascade – No approved plan

Blackfeet Reservation – High

Rocky Boy's Reservation – Change from Low to High

Fort Belknap Reservation - Change from Low to High

During the drought discussion, concern was expressed over the St. Mary's project. Many small jurisdictions depend on it for the primary part of their drinking water. Could PDMC help with St. Mary's? Counties were told that the PDMC could not assist as the Bureau of Reclamation owns the St. Mary's canal system. However, PDMC could fund development of alternative water sources.

Counties suggested the addition of a major goal to the State Plan that included the development of alternative water resources and/or the development of conservation measures along the Milk River drainage system. Projects could include terracing state, county or city land to retain water and state built and developed retention/detention facilities. Goals and Objectives or State Strategy should include the development of State-owned reservoirs and smaller check dams, and better management of the Missouri and Yellowstone water resources. Participants felt that too much water is being let out of Fresno Reservoir to flow down the Milk River. Overall, the Drought hazard needs to be elevated to a much higher goal priority in the State Plan.

Earthquake

Glacier – Low

Toole – Low

Liberty – Not Assessed

Hill – Low

Blaine – Low

Pondera – Low

Teton – Change from Medium to Low (during Cut Bank meeting)

Choteau – No approved plan

Cascade – No approved plan

Blackfeet Reservation – Low

Rocky Boy's Reservation – Low

Fort Belknap Reservation – Low

Counties noted that an earthquake in the seismic belt, to the west, could affect some critical facilities.

Flood

Glacier – High

Toole – High

Liberty – Medium

Hill – High

Blaine – High

Pondera – Medium
Teton – High
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – High
Fort Belknap Reservation – Low

Counties discussed the need for mechanisms to retain flood waters to aid in drought reduction. This could take the form of small retention and detention structures. Specifically, a retention and/or detention pond structure is needed at the Milk River Bridge, 32 miles north of Havre.

Hazardous Material Incident

Glacier – Change from Not Assessed to Medium (Cut Bank meeting)
Toole – Change from Low to Medium (Cut Bank meeting)
Liberty – Medium
Hill – Change from Medium to High
Blaine – Change from Medium to High
Pondera – Not Assessed
Teton – Not Assessed
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – Medium
Rocky Boy's Reservation – Low
Fort Belknap Reservation – Medium

Counties discussed the need for Blaine and Hill counties to be rated high for Hazardous Material Incidents due to the presence of railroad and transportation corridors, and international traffic from Canada. A large number of HAZMAT containers travel along the transportation corridors. Hill County expressed concern over the high number of HAZMAT incidents in Blaine County that have occurred in the past. It was also noted that nuclear waste may be transported through the district in the future.

Landslide

Glacier – Low
Toole – Not Assessed
Liberty – Not Assessed
Hill – Not Assessed
Blaine – Not Assessed
Pondera – Low
Teton – Low
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – Change from Not Assessed to Low (Cut Bank meeting)
Rocky Boy's Reservation – Not Assessed

Fort Belknap Reservation – Not Assessed

No changes were noted for the Landslide hazard.

Severe Thunderstorms, Hail, Wind and Tornadoes

Glacier – High

Toole – High

Liberty – High

Hill – High

Blaine – High

Pondera – High

Teton – Change from Medium to High (Cut Bank meeting)

Choteau – No approved plan

Cascade – No approved plan

Blackfeet Reservation – High

Rocky Boy's Reservation – Change from Medium to High (Cut Bank meeting)

Fort Belknap Reservation – Change from Medium to High (Cut Bank meeting)

Counties suggested that Rocky Boy and Fort Belknap reservations and Teton County should be upgraded to high risk for this hazard.

Terrorism and Violence

Glacier – Change from Not Assessed to Medium (Cut Bank meeting)

Toole – Not Assessed

Liberty – Not Assessed

Hill – Medium

Blaine – Medium

Pondera – Not Assessed

Teton – Low

Choteau – No approved plan

Cascade – No approved plan

Blackfeet Reservation – Low

Rocky Boy's Reservation – Low

Fort Belknap Reservation – Low

Participants noted that Hill and Blaine counties stand out as medium risk when the rest of District 2 is low or not assessed. Hill County was ranked as medium due to the college riots that occurred in the early 1970s at MSU Northern. Hill and Blaine counties each have a Canadian border crossing so the potential for this hazard exists. Jail statistics in Hill County demonstrate that illegal aliens have been picked up by the Border Patrol and this is an issue in the Highline. The counties felt that there is no need to split Terrorism and Violence into separate hazards.

Volcanic Eruption

Glacier – Low

Toole – Low

Liberty – Not Assessed
Hill – Not Assessed
Blaine – Not Assessed
Pondera – Low
Teton – Not Assessed
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – Not Assessed
Rocky Boy's Reservation – Not Assessed
Fort Belknap Reservation – Not Assessed

Participants noted that the entire state should probably be rated as low risk for this hazard. However, it was acknowledged that air quality is still a hazard due to secondary effects of other natural disasters. It was noted that ash fall could still be affecting the quality of air in Hill and Blaine counties.

Wildfire

Glacier – High
Toole – High
Liberty – High
Hill – High
Blaine – High
Pondera – High
Teton – High
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – High
Fort Belknap Reservation – High

Counties agreed with the high risk rating for wildfire.

Winterstorms

Glacier – High
Toole – High
Liberty – High
Hill – High
Blaine – High
Pondera – High
Teton – Medium
Choteau – No approved plan
Cascade – No approved plan
Blackfeet Reservation – High
Rocky Boy's Reservation – High
Fort Belknap Reservation – High

Counties agreed with risk rating for this hazard.

ASSESSMENT OF STATE GOALS – DISTRICT 2

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Blaine County discussed their need to re-examine their flood projects. The project that concerned mitigation options for homes repeatedly flooded along Thirtymile Creek (North Chinook and North Harlem) is still a valid project. Mitigation options include acquisition or relocation; there are many potential acquisitions and a few relocation PDMC projects. Additionally, culverts have been identified that are too small to handle flood waters.

Hill County discussed the need to add a project that concerns the construction of a retention or detention pond to Cottonwood Bridge on the Milk River. The existing bridge has serious silt buildup and erosion problems. The State Strategy should include a project to expand the wetlands below the Cottonwood Bridge with the construction of a detention pond. Participants noted that if the bridge fails, a couple of Hutterite colonies would be cut off and international border traffic would stop. It was suggested that the Border Patrol might fund part of the bridge repair since they use the road up to the border crossing.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Blaine and Hill counties have many projects aimed at the reduction of fuel loads. Some of these projects are currently ongoing.

Goal 5: Reduce potential earthquake losses in Western Montana.

Currently, Blaine and Hill counties do not have earthquake mitigation projects and county participants did not suggest any projects needed to be added.

Goal 6: Minimize economic impacts of drought.

Blaine and Hill counties have drought projects listed under Wildfire mitigation projects.

Goal 7: Reduce impacts from severe winter weather.

No mitigation projects have been written for Blaine and Hill counties. However, county participants noted that Rocky Boy's and Fort Belknap reservations have several good projects. Areas of concern include mass sheltering, feeding and care of people during blizzards and severe winterstorms. Hill County noted that it is difficult to identify a "Special Needs" population as these people tend not to come forward for identification. Additionally, it was noted that a winterstorm awareness campaign is needed.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

Counties discussed the need to separate the less frequent hazards, particularly Severe Thunderstorms, Hail, Wind and Tornadoes as this hazard is a high risk for District 2.

Blaine and Hill counties also discussed the fact that they have HAZMAT equipment, train derailment warning system, etc., but they do not have PDMC type eligible projects. They inquired if PDMC would fund a project to install a dam warning system for a county owned dam. Additionally, they suggested that the National Weather Service or MT-DNRC Dam Safety Program be contacted about funding for a satellite feed.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results

What jurisdiction type do you represent?		
	Response Percent	Response Count
Federal <input type="text"/>	13.6%	3
State <input type="text"/>	4.6%	1
County <input type="text"/>	45.5%	10
Tribal <input type="text"/>	13.6%	3
Public Utility <input type="text"/>	9.1%	2
General Public	0.0%	0
Other (please specify) <input type="text"/>	18.2%	4
answered question		22
skipped question		0

What County/Tribal Community do you represent or as a private citizen where do you live?		
	Response Percent	Response Count
Blackfeet <input type="text"/>	4.6%	1
Crow	0.0%	0
Flathead	0.0%	0
Fort Belknap	0.0%	0
Fort Peck	0.0%	0
Northern Cheyenne	0.0%	0
Rocky Boy's <input type="text"/>	9.1%	2
Beaverhead	0.0%	0
Big Horn	0.0%	0
Blaine	0.0%	0
Broadwater	0.0%	0
Carbon	0.0%	0
Carter	0.0%	0
Cascade <input type="text"/>	22.7%	5
Chouteau	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Custer	0.0%	0
Daniels	0.0%	0
Dawson	0.0%	0
Deer Lodge	0.0%	0
Fallon	0.0%	0
Fergus	0.0%	0
Flathead	0.0%	0
Gallatin	0.0%	0
Garfield	0.0%	0
Glacier	13.6%	3
Golden Valley	0.0%	0
Granite	0.0%	0
Hill	45.5%	10
Jefferson	0.0%	0
Judith Basin	0.0%	0
Lake	0.0%	0
Lewis And Clark	0.0%	0
Liberty	0.0%	0
Lincoln	0.0%	0
Madison	0.0%	0
McCone	0.0%	0
Meagher	0.0%	0
Mineral	0.0%	0
Missoula	0.0%	0
Musselshell	0.0%	0
Park	0.0%	0
Petroleum	0.0%	0
Phillips	0.0%	0
Pondera	0.0%	0
Powder River	0.0%	0
Powell	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie	0.0%	0
Ravalli	0.0%	0
Richland	0.0%	0
Roosevelt	0.0%	0
Rosebud	0.0%	0
Sanders	0.0%	0
Sheridan	0.0%	0
Silver Bow	0.0%	0
Stillwater	0.0%	0
Sweet Grass	0.0%	0
Teton	0.0%	0
Toole <input type="checkbox"/>	4.6%	1
Treasure	0.0%	0
Valley	0.0%	0
Wheatland	0.0%	0
Wibaux	0.0%	0
Yellowstone	0.0%	0
Other	0.0%	0
answered question		22
skipped question		0

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.		
	Response Percent	Response Count
Yes <input type="checkbox"/>	72.7%	16
No <input type="checkbox"/>	27.3%	6
answered question		22
skipped question		0

How would you rate the overall quality and content of the plan.		
	Response Percent	Response Count
1 - Poor	0.0%	0
2	0.0%	0
3 - Average	46.2%	6
4	107.7%	14
5 - Excellent	7.7%	1
answered question		13
skipped question		9

Do you feel the plan accurately portrays natural and man-made hazards in Montana?		
	Response Percent	Response Count
Yes	161.5%	21
No	0.0%	0
answered question		13
skipped question		9

What improvements do you think could be made to the plan?		Response Count
		6
answered question		6
skipped question		16

From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction.

High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	30.8% (4)	61.5% (8)	7.7% (1)	1.77	13
Drought	76.9% (10)	15.4% (2)	7.7% (1)	1.31	13
Earthquake	7.1% (1)	21.4% (3)	71.4% (10)	2.64	14
Flooding/Dam Failure	30.8% (4)	38.5% (5)	30.8% (4)	2.00	13
Hazardous Material Incidents	53.8% (7)	38.5% (5)	7.7% (1)	1.54	13
Landslide	15.4% (2)	15.4% (2)	69.2% (9)	2.54	13
Terrorism/Violence	15.4% (2)	46.2% (6)	38.5% (5)	2.23	13
Thunderstorm Wind, Hail, and Tornadoes	71.4% (10)	28.6% (4)	0.0% (0)	1.29	14
Volcanic Eruption	0.0% (0)	7.7% (1)	92.3% (12)	2.92	13
Wildfire	69.2% (9)	23.1% (3)	7.7% (1)	1.38	13
Winter Storms/Avalanche	57.1% (8)	42.9% (6)	0.0% (0)	1.43	14
<i>answered question</i>					14
<i>skipped question</i>					8

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.			Response Percent	Response Count
Communicable Disease	<input type="text"/>		100.0%	8
Drought	<input type="text"/>		100.0%	8
Earthquake	<input type="text"/>		87.5%	7
Flooding/Dam Failure	<input type="text"/>		87.5%	7
Hazardous Material Incidents	<input type="text"/>		87.5%	7
Landslide	<input type="text"/>		87.5%	7
Terrorism/Violence	<input type="text"/>		100.0%	8
Thunderstorm Wind, Hail, and Tornadoes	<input type="text"/>		100.0%	8
Volcanic Eruption	<input type="text"/>		87.5%	7
Wildfire	<input type="text"/>		100.0%	8
Winter Storms/Avalanche	<input type="text"/>		100.0%	8
answered question				8
skipped question				14

Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=highest / 10=lowest):

	High				Medium				Low		Rating Average
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	44.4% (4)	33.3% (3)	0.0% (0)	0.0% (0)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	0.0% (0)	2.67
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	45.5% (5)	27.3% (3)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00
Reduce the Community Impacts of Wildland and Rangeland Fires	45.5% (5)	18.2% (2)	18.2% (2)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.36
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	9.1% (1)	27.3% (3)	9.1% (1)	18.2% (2)	18.2% (2)	0.0% (0)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	4.00
Minimize Economic Impacts of Drought	36.4% (4)	9.1% (1)	18.2% (2)	0.0% (0)	18.2% (2)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.09
Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)	18.2% (2)	9.1% (1)	36.4% (4)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.45
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	27.3% (3)	0.0% (0)	45.5% (5)	18.2% (2)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.82
Reduce Potential Earthquake Losses in Western Montana	0.0% (0)	0.0% (0)	18.2% (2)	27.3% (3)	27.3% (3)	0.0% (0)	0.0% (0)	18.2% (2)	0.0% (0)	9.1% (1)	5.36
Reduce Losses from Hazardous Material Incidents	36.4% (4)	27.3% (3)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.09
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	9.1% (1)	27.3% (3)	18.2% (2)	9.1% (1)	9.1% (1)	0.0% (0)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	4.09

answered question

skipped question

Please indicate any additional Goals you think should be added to the State Plan.

Response Count

0

answered question

0

skipped question

22

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.

	High		Medium						Low		Rating Average
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	0.0% (0)	62.5% (5)	25.0% (2)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.63
Conduct Level 1 HAZUS-MH analyses for all Montana counties	50.0% (4)	25.0% (2)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00
Improve Statewide HAZUS data	50.0% (4)	25.0% (2)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00
Determine GPS locations of all State buildings for detailed, non-public analysis	12.5% (1)	37.5% (3)	25.0% (2)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	3.38
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	0.0% (0)	62.5% (5)	25.0% (2)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.75
Promote earth science education of hazards in schools	25.0% (2)	25.0% (2)	12.5% (1)	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.75
Conduct a Statewide warning capability assessment	62.5% (5)	12.5% (1)	0.0% (0)	0.0% (0)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.13
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	62.5% (5)	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	50.0% (4)	25.0% (2)	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.13
Increase the public awareness of hazards	50.0% (4)	25.0% (2)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	62.5% (5)	0.0% (0)	12.5% (1)	0.0% (0)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.25
Increase readiness for the protection of life and property during an event	57.1% (4)	28.6% (2)	14.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.57

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

22

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High				Medium				Low		Rating Average
Continue outreach of mitigation project funding opportunities	50.0% (4)	25.0% (2)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.75
Provide technical assistance with the environmental review process	50.0% (4)	37.5% (3)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.88
Provide technical assistance for project development	50.0% (4)	37.5% (3)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.88
Create an electronic database of completed mitigation projects in Montana	12.5% (1)	37.5% (3)	25.0% (2)	0.0% (0)	0.0% (0)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.13
Increase the scope and participation of the State Hazard Mitigation Team	37.5% (3)	25.0% (2)	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.63
Create a private advisory group for mitigation	25.0% (2)	12.5% (1)	12.5% (1)	25.0% (2)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.25
Streamline mitigation standards in state and/or local subdivision regulations	12.5% (1)	25.0% (2)	50.0% (4)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.88
Strengthen state and/or local building codes	25.0% (2)	12.5% (1)	12.5% (1)	12.5% (1)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	4.00
Require growth policies consider natural and man-made hazard	25.0% (2)	25.0% (2)	25.0% (2)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.63
Create a state funded grant program to assist with the 25% match for local governments	50.0% (4)	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.13
Coordinate local plan development	37.5% (3)	25.0% (2)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.25
Provide technical assistance with											

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	75.0% (6)	12.5% (1)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.63
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
											Response Count
											0
answered question											0
skipped question											22

Goal: Mitigate the potential loss of life and property from flooding.												
	High		Medium			Low					Rating Average	R
Develop and improve upon model floodplain ordinances for local governments	16.7% (1)	16.7% (1)	33.3% (2)	0.0% (0)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.17	
Develop mapping for unmapped flood prone areas	16.7% (1)	50.0% (3)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.17	
Update floodplain mapping of mapped areas	0.0% (0)	60.0% (3)	40.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.40	
Establish a schedule for NFIP map reviews and updates	0.0% (0)	66.7% (4)	16.7% (1)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.67	
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	66.7% (4)	16.7% (1)	0.0% (0)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.83	
Increase the public awareness of flood mitigation	16.7% (1)	66.7% (4)	0.0% (0)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.33	
Reduce the number of current and future structures in the floodplain	33.3% (2)	16.7% (1)	33.3% (2)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.50	
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	33.3% (2)	33.3% (2)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.17	
Provide adequate warning of flooding events	83.3% (5)	0.0% (0)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

22

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium					Low	Rating Average	Re
Reduce fuels in the wildland urban interface	66.7% (4)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	
Reduce hazardous fuels in rangeland areas	33.3% (2)	33.3% (2)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00	
Accurately assess and address the current wildland urban interface problems at the subdivision level	16.7% (1)	50.0% (3)	16.7% (1)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.50	
Enhance firefighting resources and improve firefighting capabilities	66.7% (4)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	
Enhance community awareness of wildfires through education	50.0% (3)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	
Enhance effectiveness of response and evacuation	50.0% (3)	33.3% (2)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	
Establish mapping or record keeping practices to support fuel management strategies	33.3% (2)	50.0% (3)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.83	
Minimize human-caused ignition sources in fire-prone areas	50.0% (3)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	
Centralize fire history documentation	0.0% (0)	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.17	
Develop a consistent Statewide fire risk assessment system	33.3% (2)	50.0% (3)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.83	
Encourage sustainable growth in wildland fire hazard areas	33.3% (2)	66.7% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

21

Goal: Reduce potential earthquake losses in Western Montana.

	High				Medium					Low	Rating Average
Goal: Reduce potential earthquake losses in Western Montana.	0.0% (0)	16.7% (1)	16.7% (1)	16.7% (1)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	4.00
Provide greater enforcement of current building codes	0.0% (0)	33.3% (2)	16.7% (1)	0.0% (0)	33.3% (2)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	4.00
Develop model seismic building codes	0.0% (0)	33.3% (2)	16.7% (1)	0.0% (0)	33.3% (2)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	4.00
Create stronger building standards for critical facilities and structures housing vulnerable populations	0.0% (0)	33.3% (2)	33.3% (2)	0.0% (0)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.33
Require earthquake drills in schools in Western Montana	16.7% (1)	16.7% (1)	33.3% (2)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.00
Expand and upgrade earthquake monitoring network and reporting capabilities	16.7% (1)	16.7% (1)	33.3% (2)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.00
Continue "Earthquake Preparedness Month" outreach activities during the month of October	0.0% (0)	33.3% (2)	33.3% (2)	0.0% (0)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.33
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	0.0% (0)	33.3% (2)	33.3% (2)	0.0% (0)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.50
Seismically retrofit existing critical facilities and government assets	0.0% (0)	16.7% (1)	50.0% (3)	0.0% (0)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.67

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

22

Goal: Minimize economic impacts of drought.

	High		Medium						Low		Rating Average	Res C
Develop a system for distributing information on current conditions	50.0% (3)	50.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	
Continue to support the State Drought Advisory Committee	50.0% (3)	33.3% (2)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	
Install Statewide drought monitoring stations	50.0% (3)	16.7% (1)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.83	
Use long-term groundwater monitoring to assess drought conditions	66.7% (4)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	
Educate farmers and ranchers in fiscally preventing drought losses	50.0% (3)	33.3% (2)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	
Educate farmers and ranchers in reducing physical losses during dry seasons	50.0% (3)	33.3% (2)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	
Identify water retention projects that could lessen the effects of drought	66.7% (4)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.50	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

22

Goal: Reduce impacts from severe winter weather.

	High				Medium				Low		Rating Average	R
Distribute winter driving and survival tips	66.7% (4)	16.7% (1)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	
Increase public awareness of winter weather hazards	66.7% (4)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.33	
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	16.7% (1)	16.7% (1)	33.3% (2)	0.0% (0)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.17	
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	83.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.67	
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	50.0% (3)	16.7% (1)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00	
answered question												
skipped question												

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

22

Goal: Reduce Impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)

	High		Medium						Low		Rating Average	Re
Install safety film on critical facilities to prevent shattering glass.	33.3% (2)	33.3% (2)	16.7% (1)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.17	
Encourage development and enforcement of wind resistant buildings and construction codes	16.7% (1)	33.3% (2)	33.3% (2)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.50	
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	33.3% (2)	50.0% (3)	0.0% (0)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00	
<i>answered question</i>												
<i>skipped question</i>												

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	0
<i>answered question</i>	0
<i>skipped question</i>	22

Goal: Reduce losses from Hazardous Material Incidents											
	High			Medium			Low			Rating Average	Response Count
Develop communication plan for hazardous material emergencies	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.17	
Enhance information capability on types of hazardous materials traveling transportation routes	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.17	
Provide hazardous material training to emergency responders	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.17	
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.17	
answered question											
skipped question											

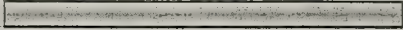
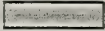
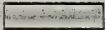

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.		Response Count
		0
answered question		0
skipped question		22

Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High		Medium						Low		Rating Average	R
Identify and map areas of greatest landslide and avalanche potential	16.7% (1)	16.7% (1)	50.0% (3)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.67	
Create a landslide/avalanche technical committee	0.0% (0)	33.3% (2)	16.7% (1)	16.7% (1)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.50	
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	33.3% (2)	50.0% (3)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.83	
Reduce losses from communicable disease	66.7% (4)	33.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.33	
Increase awareness of risks from communicable disease	83.3% (5)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.17	
<i>answered question</i>												
<i>skipped question</i>												

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	0
<i>answered question</i>	0
<i>skipped question</i>	22

Please indicate how long it took you to complete the survey.		
	Response Percent	Response Count
5 minutes	0.0%	0
10 minutes	0.0%	0
15 minutes 	57.1%	4
20 minutes 	14.3%	1
30 minutes 	14.3%	1
Greater than 30 minutes 	14.3%	1
answered question		7
skipped question		15

District 2 On-Line Survey - Other Jurisdictions Completing Survey

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

Displaying 1 - 4 of 4 responses

<< Prev

Next >>

Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. Fire Service	Tue, 6/19/07 3:19 PM
 Find	2. Univeristy	Tue, 6/5/07 12:44 PM
 Find	3. Univeersity system	Thu, 5/24/07 5:36 PM
 Find	4. University	Wed, 5/23/07 1:29 PM
10 responses per page		

District 2 On-Line Survey - Suggested Improvements to State Plan

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



Displaying 1 - 8 of 8 responses

<< Prev

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Jump To: 1

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Comment Text		Response Date
 Find	1. Update hazard maps with current data.	Tue, 6/5/07 2:13 PM
 Find	2. Pandemic response up-grade for communicable Vector response up-grade	Tue, 6/5/07 12:56 PM
 Find	3. no ideas at this time	Fri, 6/1/07 2:45 PM
 Find	4. no ideas at this time.	Fri, 6/1/07 2:45 PM
 Find	5. no ideas at this time	Fri, 6/1/07 2:44 PM
 Find	6. No specific suggestions.	Wed, 5/30/07 12:24 PM
 Find	7. There needs to be a greater active roll on the part of the State and Federal governments along the northern border of the state. Most departments responing to an "All Hazards" incident are not prepared. Both equipment and or training. Again most departments do very well on the fire and MVA fronts but budgets will not allow for HAZMAT equipment beyond a Level-B at best.	Thu, 5/24/07 7:08 AM
 Find	8. None. I feel that a plan should be loose enough so that one can deviate from the plan if the situation warrents without worrying about liability issues.	Wed, 5/23/07 6:19 PM

10 responses per page

District 2 On-Line Survey - Other Wildfire Mitigation Projects

[close window](#)


Displaying 1 - 1 of 1 responses

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Jump To: 1

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Comment Text		Response Date
 Find	1. Stop the hold up in courts for companies that want to log dead forests. When they log an area they seed it for new trees. By logging we take away the fuels that spread wild fires.	Thu, 5/24/07 8:30 AM
		10 responses per page

District 2 On-Line Survey-Impact of Future Development on Communicable Disease Hazard

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
Displaying 1 - 8 of 8 responses

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Next >>

Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. Increased vulnerability to exposure to illnesses from visitors.	Wed, 6/6/07 10:45 AM
 Find	2. increase risk	Tue, 6/5/07 2:16 PM
 Find	3. Much more time commitment/resource	Tue, 6/5/07 1:05 PM
 Find	4. increase	Thu, 5/24/07 5:38 PM
 Find	5. People passing through the reservation boundries especially at the Casino will increase exposure	Thu, 5/24/07 9:57 AM
 Find	6. We have good vaccine preventable disease coverage, but still rank high in diseases like STD's	Thu, 5/24/07 8:39 AM
 Find	7. We have a low population so overall effect would be low	Thu, 5/24/07 7:34 AM
 Find	8. more people relying on same sytem	Wed, 5/23/07 2:56 PM
		10 responses per page

District 2 On-Line Survey-Impact of Future Development on Drought Hazard

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



Displaying 1 - 8 of 8 responses

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Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. decrease in Natural resources and lower agriculture production	Wed, 6/6/07 10:45 AM
 Find	2. increase risk	Tue, 6/5/07 2:16 PM
 Find	3. Have existed with it for years, when diminished, will diminish impact wildfire	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. Less moisture will increase wildfire activity and cause problems with livestock as there will be decrease in the availability of feed products	Thu, 5/24/07 9:57 AM
 Find	6. Happens just about every year	Thu, 5/24/07 8:39 AM
 Find	7. Low because of water-shed from the mountains	Thu, 5/24/07 7:34 AM
 Find	8. Water reserves are limited now extensive drought could be disastrous	Wed, 5/23/07 2:56 PM
10 responses per page		

District 2 On-Line Survey-Impact of Future Development on Earthquake Hazard

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





Displaying 1 - 7 of 7 responses

<< Prev

Next >>

Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. none	Wed, 6/6/07 10:45 AM
 Find	2. no change	Tue, 6/5/07 2:16 PM
 Find	3. No additional impact	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. possible injury to landbase	Thu, 5/24/07 9:57 AM
 Find	6. Effect maybe from people out of this area comming here from more earthquake prone areas.	Thu, 5/24/07 7:34 AM
 Find	7. building damage	Wed, 5/23/07 2:56 PM
10 responses per page		

District 2 On-Line Survey-Impact of Future Development on Flooding Hazard

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Displaying 1 - 7 of 7 responses

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Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. loss of life and homes	Wed, 6/6/07 10:45 AM
 Find	2. no change	Tue, 6/5/07 2:16 PM
 Find	3. No additional impact	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. floods are more apt to happen if there is an increase in moisture during winter and spring storms	Thu, 5/24/07 9:57 AM
 Find	6. We have an old earthen damn on the GNP boundary. This could cause a problem for some housing areas around the Lower St. Mary Lake area.	Thu, 5/24/07 7:34 AM
 Find	7. not likely	Wed, 5/23/07 2:56 PM
10 responses per page		

District 2 On-Line Survey-Impact of Future Development on Hazardous Material Incidents

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


Displaying 1 - 7 of 7 responses

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Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. Contamination of ground water, soil and cause illness and injury	Wed, 6/6/07 10:45 AM
 Find	2. increase	Tue, 6/5/07 2:16 PM
 Find	3. High hazard potential due to RR and Highway traffic	Tue, 6/5/07 1:05 PM
 Find	4. increase	Thu, 5/24/07 5:38 PM
 Find	5. Incresed activity at the Casino and building of Methanol plant willincrease the possibility of events.	Thu, 5/24/07 9:57 AM
 Find	6. Most of what we have in the area is shipping by truck. Depending on the time of year it would have an economic impact to the area.	Thu, 5/24/07 7:34 AM
 Find	7. Railroad through metropolitan area a concern	Wed, 5/23/07 2:56 PM
10 responses per page		

District 2 On-Line Survey-Impact of Future Development on Landslide Hazard

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



Displaying 1 - 7 of 7 responses

<< Prev

Next >>

Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. loss of land useable land base	Wed, 6/6/07 10:45 AM
 Find	2. no change	Tue, 6/5/07 2:16 PM
 Find	3. No additional impact	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. movement of land around the dam may cause landslides.	Thu, 5/24/07 9:57 AM
 Find	6. Glacier National Park has the greatest problem with this. It does have an economic impact on the area when this occurs.	Thu, 5/24/07 7:34 AM
 Find	7. NOT LIKELY	Wed, 5/23/07 2:56 PM
10 responses per page		

District 2 On-Line Survey-Impact of Future Development on Severe Summer Weather Hazard

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Displaying 1 - 8 of 8 responses

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Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. Loss of agricultural production, injury or loss of life, damage to structures.	Wed, 6/6/07 10:45 AM
 Find	2. increase	Tue, 6/5/07 2:16 PM
 Find	3. Have always trained for adverse weather response	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. If the problem of Global Warming is true then we are looking at the changes in season, may increase the intensity of storms.	Thu, 5/24/07 9:57 AM
 Find	6. frequent	Thu, 5/24/07 8:39 AM
 Find	7. This has a more personal economic effect.	Thu, 5/24/07 7:34 AM
 Find	8. Could impact greatly depending on location	Wed, 5/23/07 2:56 PM
		10 responses per page

District 2 On-Line Survey-Impact of Future Development on Terrorism Hazard

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




Displaying 1 - 8 of 8 responses

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Jump To: 1

Go >>

Comment Text	Response Date
 Find 1. Loss of life, increased injury increase of the delivery of drugs	Wed, 6/6/07 10:45 AM
 Find 2. no change	Tue, 6/5/07 2:16 PM
 Find 3. No additional impact	Tue, 6/5/07 1:05 PM
 Find 4. same	Thu, 5/24/07 5:38 PM
 Find 5. Increased substance abuse may may cause increased violence	Thu, 5/24/07 9:57 AM
 Find 6. our county has an international border	Thu, 5/24/07 8:39 AM
 Find 7. There are some wide open areas that should be monitored better. These areas could lend themselves favorable to this kind of activity.	Thu, 5/24/07 7:34 AM
 Find 8. Border Close to us but patrolled	Wed, 5/23/07 2:56 PM
10 responses per page	

District 2 On-Line Survey-Impact of Future Development on Volcanic Eruption Hazard

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


Displaying 1 - 7 of 7 responses

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Jump To: 1

Go >>

Comment Text		Response Date
 Find	1. none	Wed, 6/6/07 10:45 AM
 Find	2. no change	Tue, 6/5/07 2:16 PM
 Find	3. No additional impact	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. none	Thu, 5/24/07 9:57 AM
 Find	6. Again the same as point three.	Thu, 5/24/07 7:34 AM
 Find	7. If happened could produce concern	Wed, 5/23/07 2:56 PM
		10 responses per page

District 2 On-Line Survey-Impact of Future Development on Wildfire Hazard

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


Displaying 1 - 8 of 8 responses

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Jump To: 1

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Comment Text		Response Date
 Find	1. loss of natural resources, damage to structures, injury or death	Wed, 6/6/07 10:45 AM
 Find	2. no change	Tue, 6/5/07 2:16 PM
 Find	3. Great risk coupled with drought conditions	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. Drought has increase the incidence of wildfires now, if this continues the dryness will increase and over forest in are is at increased risk	Thu, 5/24/07 9:57 AM
 Find	6. just about every year	Thu, 5/24/07 8:39 AM
 Find	7. Life threatening, economic impact both buisness and personal.	Thu, 5/24/07 7:34 AM
 Find	8. A real hazard with CRP and no fire break between wildlands and residential	Wed, 5/23/07 2:56 PM
10 responses per page		

District 2 On-Line Survey-Impact of Future Development on Severe Winter Weather Hazard

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
Displaying 1 - 8 of 8 responses

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Jump To: 1

Go >>

	Comment Text	Response Date
 Find	1. injury or loss of life, damage to structures or roads	Wed, 6/6/07 10:45 AM
 Find	2. no change	Tue, 6/5/07 2:16 PM
 Find	3. Adverse weather conditions drive much of our planning/training	Tue, 6/5/07 1:05 PM
 Find	4. same	Thu, 5/24/07 5:38 PM
 Find	5. none if drought continues, but will increase if the moisture increse	Thu, 5/24/07 9:57 AM
 Find	6. common	Thu, 5/24/07 8:39 AM
 Find	7. This is one of the areas that most people here are prepared for. The greatest problem may be emergency medical ambulance service. Life Flight will not work well here in what we call a Winter Storm.	Thu, 5/24/07 7:34 AM
 Find	8. In mountainous are a definite concern	Wed, 5/23/07 2:56 PM
		10 responses per page

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Projects

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Blackfeet Reservation

High Priority

- Create evacuation plans and educate public on evacuation routes.
- Obtain backup generator for Tribal headquarters to support emergency communications.
- Obtain antennae to pick up NOAA broadcasts from Great Falls.
- Establish high-speed communication system, network reliability/ interoperability.
- Obtain generators for water systems in all communities.
- Identify emergency shelters and increase awareness on shelter locations.

Medium Priority

- Install pigtail connections at Tribal critical facilities for mobile generator.
- Obtain portable repeater that could be used in areas where current communication is poor.
- Construct new Tribal dispatch building.
- Establish telephone priority system regarding which phones would come back on-line first.
- Obtain mobile generator to use at Tribal headquarters and other critical facilities including schools, medical clinics, and emergency shelters.
- Develop resource list of emergency services needed in event of disaster.
- Establish protocols to assist citizens with special needs in event of disaster.
- Establish protocols for food and fuel distribution in event of disaster and cooperative agreements with providers.
- Establish program where government credit cards would be available for emergency provisions in event of disaster.

Blaine County

High Priority

- Construct dam on Thirtymile Creek to ensure north/south access is maintained in northern portion of County.

Medium Priority

- Obtain mobile generators for emergency shelters.
- Install two-way switches in facilities where emergency generators are used.
- Define emergency shelters in each community.
- Construct alternate railroad crossing near Harlem and Zurich for times when BNSF trains block tracks.
- Install pigtails at shelters to accommodate mobile generators.

Low Priority

- Reconstruct the Thirtymile Creek crossing to ensure north/south access for emergency services.
- Obtain emergency generator for Little Rockies Senior Center.
- Equip all schools in Harlem with pigtails for emergency generators.
- Obtain emergency generator for all schools within County.

Hill County

High Priority

- Obtain portable repeaters to use during emergencies.
- Develop a County Wildfire and All Risk Emergency Operations plan. Include a County/Interagency communications plan with cooperators and communities.

Medium Priority

- Consider additional railroad crossings in Havre because existing crossings east and west of town are commonly blocked by trains.

Low Priority

- Update and replace FM radios for Fire Department.

Liberty County

High Priority

- Train residents on how to use weather radios and other tools.

Low Priority

- Educate local population on designated shelter locations and shelter requirements and prohibitions.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Liberty County

Low Priority

- Sign agreements with "shelter" facility owners.
- Work with the American Red Cross to identify the best locations for shelters. Inventory characteristics of the facilities such as accessibility, kitchen and bathroom facilities, etc.

Rocky Boy's Reservation

Medium Priority

- Establish base station at Clinic for communications with Havre and other emergency services.
- Provide CERT training to emergency responders.
- Install pigtail connections at Tribal critical facilities for mobile generator.
- Upgrade radios for emergency responders.
- Coordinate with Northern Tier Coalition.
- Obtain NOAA weather radios for Tribal critical facilities.
- Develop a centralized 911 dispatch system.
- Develop a centralized incident command center.
- Obtain mobile generator to use at Tribal headquarters and other critical facilities including schools, medical clinics, and emergency shelters.

Low Priority

- Recruit new weather spotters.

Toole County

Medium Priority

- Do a community project to build and distribute kits.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Blackfeet Reservation

High Priority

- Obtain bullhorns or loud speakers to broadcast emergencies locally.
- Implement reverse 911 system for all areas within the reservation.
- Obtain NOAA weather radios for Tribal critical facilities and schools.
- Obtain sirens for all reservation communities.

Medium Priority

- Map areas within the reservation that do not have communications.

Blaine County

High Priority

- Obtain or update sirens in all communities.
- Obtain bullhorns or loud speakers to broadcast emergencies locally.
- Coordinate radio/repeater sites to enhance communication system.

Medium Priority

- Obtain satellite phones to enhance communication in southern part of County.

Hill County

High Priority

- Upgrade sirens in Havre and Hingham counties.

Liberty County

High Priority

- Make a bulk purchase of weather radios and distribute them.

Medium Priority

- Evaluate the existing siren system in Chester and determine how it can be used to effectively warn residents
- Develop a warning system for residents of other unincorporated areas.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Liberty County

Medium Priority

- Develop a warning system for residents of Joplin.

Rocky Boy's Reservation

High Priority

- Obtain backup generator for Tribal headquarters to support emergency communications.

Medium Priority

- Implement reverse 911 system for all areas within the reservation.
- Map areas within the reservation that do not have communications.
- Obtain portable repeater that could be used in areas where current communication is poor.
- Petition cell phone companies for better mobile phone service.
- Obtain bullhorns or loud speakers to broadcast emergencies locally.
- Develop a rural addressing system.
- Obtain sirens for towns of Rocky Boy Agency and Box Elder.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Blackfeet Reservation

High Priority

- Create activities for students of all ages to participate in involving disaster awareness.
- Launch public awareness campaign so residents understand what hazards are present when sirens are used.
- Increase awareness on risk reduction at community events.

Blaine County

High Priority

- Launch public awareness campaign so residents understand what hazards are present when sirens are used.

Hill County

High Priority

- Designate emergency shelters and increase public awareness on shelters.

Liberty County

High Priority

- Use the Liberty County Times and brochures to make information available to residents on what to do in the event of a natural disaster.

Rocky Boy's Reservation

Medium Priority

- Increase public awareness on risk reduction at Tribal health fairs.
- Create activities for students of all ages to participate in involving disaster awareness.
- Distribute education materials to organizations and reservation residents regarding preparedness for no power situations.
- Launch public awareness campaign so residents understand what hazards are present when sirens are used.
- Identify awareness on emergency shelter locations through the media.
- Create evacuation plans and educate public on evacuation routes.

Toole County

Medium Priority

- Work with newspaper to do an insert on disaster preparation.
- Support efforts of public health to educate residents about assembling a 72-hour kit.
- Make people aware of information resources.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Toole County

Low Priority

- Educate people on the need and assist them in developing personal/family contact and contingency plans for disasters.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Blaine County

High Priority

- Conduct study to determine best way to address access issues associated with Thirtymile Creek crossing.

Hill County

High Priority

- Update maps to showing new housing developments.

GOAL 2 - Increase State's capability to provide and assist locals with mitigation opportunities.

OBJECTIVE 2.2 - Promote mitigation through supportive legislation and funding.

Pondera County

Low Priority

- Review existing laws, building codes and/or land development ordinances to determine if new legislation or amendments are needed.
- Develop countywide growth plan.
- Develop land use policies.

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Blackfeet Reservation

High Priority

- Provide training for volunteer fire fighters for wildland certification.
- Locate water tank in rural areas for fire fighting.
- Recruit more volunteer fire fighters.

Medium Priority

- Construct a fire hall in community of Seville.
- Obtain fire fighting equipment for VFDs in rural communities.
- Develop additional water storage facilities.

Blaine County

High Priority

- Obtain mobile generators for response vehicles to pump water from hydrants and/or bladders.
- Utilize County and cooperators expertise to meet training needs. Provide incentive for fire fighters to attend training. Practice until proficient with County GPS units and cooperators communications system.
- Develop GPS database of water sources in County to enhance fire fighting efforts.
- Obtain larger fire response vehicles to accommodate mobile generators.
- Coordinate with State Regional DES and Federal partners for scheduling and attendance at Incident Command System (ICS) 100/200 and/or IS 700 or State of Montana DES training requirements.
- Obtain GPS units and provide training for fire departments.
- Develop new water supplied in rural areas for fire fighting.
- Identify appropriate locations for the installation of dry hydrants to provide water for fire fighting.
- Improve communication amongst volunteer fire fighters.

Medium Priority

- Identify site(s) and develop water storage facilities for towns of Turner and Hogeland.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Blaine County

Low Priority

- Obtain a temporary water bladder(s) of 5,000 to 10,000 gallons for Turner and Hogeland until permanent water storage facilities are constructed.

Fort Belknap Reservation

High Priority

- Investigate sources of used fire fighting equipment to equip community fire halls.
- Implement Memorandum of Understanding with DNRC and BLM for fire response on reservation lands.

Medium Priority

- Obtain mobile generators for response vehicles to pump water from hydrants and/or bladders.
- Develop new and upgrade existing dry hydrants in Hays and Lodgepole.
- Develop new water supplies in rural areas for fire fighting.
- Construct pipe stands along creeks to assist with crews obtaining water.
- Obtain fire tender for Lodgepole.
- Obtain a temporary water bladder(s) of 5,000 to 10,000 gallons for Hays and Lodgepole until permanent water storage facilities are constructed.
- Install cisterns or water tanks in strategic locations for fire fighting.
- Develop water storage facilities for towns of Hays and Lodgepole.
- Recruit more volunteer fire fighters.
- Provide training for volunteer fire fighters for Wildland certification.

Low Priority

- Obtain larger fire response vehicles to accommodate mobile generators.

Hill County

High Priority

- Identify sites for temporary water sources such as large bladders to be filled and used during summer and fall fire seasons.
- Recruit people for volunteer fire departments.
- Update Volunteer Fire Department PPE (turnouts) and obtain SCBAs.
- Coordinate with State Regional DES and Federal partners for scheduling attendance at Incident Command System (ICS) 100/200 and/or IS 700 or State of Montana DES training.

Medium Priority

- Construct fast fill water station north of Kremlin to reduce distance trucks have to travel to fill during fires.

Rocky Boy's Reservation

High Priority

- Identify appropriate locations for the installation of dry hydrants to provide water for fire fighting.

Medium Priority

- Develop additional water storage facilities.
- Provide training for volunteer fire fighters for wildland certification.
- Recruit more volunteer fire fighters.

Toole County

High Priority

- Make a bulk purchase of fire extinguishers and make them available at cost to owners of farm equipment.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Blackfeet Reservation

High Priority

- Conduct fuel reduction projects, as needed.
- Create fire breaks as needed on the reservation.
- Create defensible space around structures and promote FIREWISE programs in communities.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Blackfeet Reservation

Medium Priority

- Coordinate with landowners for enhanced grazing around towns to reduce fuels.

Blaine County

High Priority

- Coordinate with cooperators to employ fuel reduction treatments on CRP and other lands with high or undesirable fuels. Treatments such as double row plow/disk perimeter, mowing vegetation, introduce prescribed fire, other mechanical treatments or a combo.
- Continue grazing in sustainable areas by wild and domestic ungulates to reduce fuel loading and lower potential wildfire intensity.
- Implement Firewise practices through creation of defensible space around communities and private homes. Utilize standard Fire Protection Guidelines for residential development in the WUI. Participate in the National Firewise Communities program.
- Implement fuel reduction measures along highways, communication sites, around perimeter and within communities by cutting or mowing where feasible.

Low Priority

- Reduce number of abandoned wood buildings in town.

Fort Belknap Reservation

High Priority

- Create defensible space around structures and promote FIREWISE programs around communities and private homes.
- Continue grazing in sustainable areas by wild and domestic ungulates to reduce fuel loading and lower potential wildfire intensity.
- Burn around communities to mitigate wildfire risk.
- Coordinate with landowners for enhanced grazing around towns to reduce fuels.
- Implement fuel reduction measures around perimeter and within communities by cutting or mowing where feasible.

Medium Priority

- Implement fuel reduction measures along highways and communication sites by cutting or mowing where feasible.
- Coordinate with BLM to employ fuel reduction treatments on lands with high or undesirable fuels.
- Reduce number of abandoned wood buildings in towns.

Glacier County

High Priority

- Promote best management practices for crop and rangeland.
- Assist the public to develop defensible space around dwellings/farm buildings.

Hill County

High Priority

- Employ fuel reduction and/or containment treatments on CRP lands. With cooperators and landowners apply treatments such as double row plow/disk of perimeter, mow vegetation, introduce prescribed fire or a combination of these.
- Reduce the number of railroad ignitions through coordination with railroad representatives. Coordinate and request railroad right-of-way fuel reduction to include mowing/spraying and removal at appropriate times.
- Coordinated with BNSF for earlier spraying of weeds along railroad right-of-way.
- Implement fuel reduction measures along highways, at communication sites, and on the perimeter and within communities by cutting or mowing where feasible.

Medium Priority

- Continue grazing in sustainable areas with wild and domestic ungulates to reduce fuel loading and decrease potential wildfire intensity.
- Implement Firewise practices through creation of defensible space around communities and private homes. Utilized standard Fire Protection Guidelines for Residential Development in the WUI as identified in NFPA 1144 Standard for Protection.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Liberty County

High Priority

- Work with the USDA to encourage landowners with CRP lands to create and maintain fire guards.

Pondera County

High Priority

- Promote best management practices for crop and rangeland.
- Assist the public to develop defensible space around dwellings and farm buildings.

Rocky Boy's Reservation

High Priority

- Collaborate with USFS and BLM on fuel reduction projects.
- Create fire breaks as needed on the reservation.
- Coordinate with landowners for enhanced grazing around towns to reduce fuels.
- Create defensible space around structures and promote FIREWISE programs in communities.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Blaine County

High Priority

- Reduce number of railroad ignitions by coordination with BNSF railroad welding crews. Request railroad right-of-way fuel reduction mowing/spraying removal.
- With cooperators, provide classroom or video fire suppression training for rural area citizens and County employees who will respond to wildland fires.

Glacier County

Medium Priority

- Promote such educational programs as Firewise.

Hill County

High Priority

- With cooperators, provide classroom or video fire suppression training for rural area citizens and County employees who will respond to wildland fires.

Liberty County

Medium Priority

- Install a fire danger sign on U.S. Highway near Chester.

Pondera County

Medium Priority

- Promote such educational programs as Firewise.

Toole County

Medium Priority

- Erect or lease a billboard on I-15 with a fire prevention message.
- Erect two fire danger signs along US Highway 2.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Blaine County

High Priority

- Develop a County Wildfire-Emergency and All Risk Operations Plan, including a County/Interagency communications plan with cooperators and communities.
- Develop Type III Incident Management Team table of organization utilizing expertise within the county and adjacent counties within the MT State DES Region.

Fort Belknap Reservation

High Priority

- Install fire markers on fences and utility poles to enhance response efforts.
- Install sirens in communities to alert fire fighters to respond.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Fort Belknap Reservation

Medium Priority

- Construct a heated emergency response building in Lodgepole to house fire tenders and ambulance.

Glacier County

High Priority

- Continue efforts to put smoke alarms in all residences, businesses and facilities.

Hill County

High Priority

- With rural, county and municipal fire departments and County DES with cooperators develop a standardized communication plan for rural fires using available frequencies and cooperator frequencies or repeaters during emergency incidents.
- Develop Type III Incident Management Team table of organization utilizing expertise within the county and adjacent counties with the MT State DES region. Utilize the National Incident Commander.
- Locate and identify roads that have wooden bridges with the County. Plan protection measures and alternate routes in the event of a wildfire compromising or burning these bridges.

Pondera County

High Priority

- Continue efforts to put smoke alarms in all residences, businesses and facilities.

Toole County

High Priority

- Install a fire hydrant at Wilcox Corner on the water line being constructed north of Shelby.

OBJECTIVE 3.6 - Establish mapping or record keeping practices to support fuel management strategies.

Blaine County

High Priority

- Utilize and enforce Blaine County Burning Permit. Examine adjacent county's burning permits and standardize requirements.

Fort Belknap Reservation

High Priority

- GPS rural homes to enhance wildfire protection.

Medium Priority

- Develop GPS database of water sources on reservation to enhance fire fighting efforts.

Hill County

High Priority

- Utilize and enforce Hill Co. Burning Permit requirements. Compare and review neighboring co. burn permits for selection of standardized burn permits.
- Utilize Co. and cooperators expertise for GPS training. Provide incentive for fire fighters and emergency services personnel to attend this training. Practice until proficient with Co. GPS units. Use GPS and other information for Co. Wildland fires.

Medium Priority

- Develop GPS database of water sources for distribution and inclusion in County and municipality fire apparatus.

Liberty County

High Priority

- Obtain maps of the distribution of the CRP acres from the Farm Services Agency to place at the fire halls at the start of each fire season.

Medium Priority

- Coordinate the development of the Community Wildfire Protection Plan with this plan.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 4 - Minimize economic impacts of drought.

OBJECTIVE 4.1 - Identify water retention projects that could lessen the effects of drought.

Glacier County

Medium Priority

- Develop funds and public impetus to improve water intake.

Liberty County

Medium Priority

- Assist the Sage Creek Colony in drilling a new stock watering well.
- Get homes north of Chester on a water system.

Pondera County

Medium Priority

- Develop funds and public impetus to move the city's water intake to the deep pool of Lake Frances.

Toole County

Medium Priority

- Assist Hillside Colony with installing a water well for livestock.
- Increase water storage capacity for Galata Water District for domestic use and firefighting.
- Assist Eagle Creek Colony with installing a water well for livestock to supplement run-off stock water source.
- Assist Camrose Colony with installing a water well for livestock to supplement run-off stock water source.

Low Priority

- Hook up two existing wells into water system of Kevin.

OBJECTIVE 4.2 - Provide education and incentives for minimizing the effects of drought.

Blackfeet Reservation

Medium Priority

- Provide education and awareness to Reservation community on drought.

Liberty County

Low Priority

- Attend meetings and share information about these projects with local governments and potentially affected residents.

Toole County

Low Priority

- Obtain technical expertise to assist the Devon Water System users in obtaining/maintaining an adequate domestic water supply until they can be served by the Rocky Boy Regional Water Authority.

OBJECTIVE 4.3 - Improve drought monitoring and assessments.

Blackfeet Reservation

Medium Priority

- Continue meetings between TERC and Drought Taskforce subcommittee.

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Blackfeet Reservation

Medium Priority

- Develop evacuation plans, including means of transporting people and evacuation routes.
- Provide NOAA weather radios to residents downstream from dams.
- Develop protocol for notifying Canada in the event of Sherburne Dam breach.
- Implement a flood warning system.
- Install an early warning system to interface with dispatch at Tribal headquarters.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Blaine County

Medium Priority

- Equip Dry Fork Dam (north of Chinook) with siren system to alert downstream residents of hazard.
- Obtain siren for Dry Fork Dam.

Rocky Boy's Reservation

High Priority

- Provide NOAA weather radios to residents downstream from Bonneau Dam & in Box Elder.
- Develop evacuation plans, including means of transporting people and evacuation routes.

Medium Priority

- Identify alternate location of emergency shelter in Box Elder since current shelter (Box Elder School) is located in floodplain.
- Equip Bonneau Dam with sirens to alert downstream residents of impending breach.
- Install an early warning system on Bonneau Dam to interface with dispatch at Tribal headquarters.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Blackfeet Reservation

Medium Priority

- Create floodplain ordinances.
- Create planning and zoning guidelines for development within the floodplain.
- Consider mitigation options (including relocation) for homes repeatedly flooded.
- Implement zoning below and around dams.

Blaine County

Medium Priority

- Consider mitigation options for homes repeatedly flooded along Thirtymile Creek.

Glacier County

Low Priority

- Develop land use policies.
- Develop countywide growth plan.

Liberty County

Medium Priority

- After implementing Cottonwood Creek hydraulic projects, work with FEMA to adjust the floodplain boundary and remove property from the floodplain.

Pondera County

Low Priority

- Develop land use policies.
- Develop countywide growth plan.

Rocky Boy's Reservation

High Priority

- Create planning and zoning guidelines for development within the floodplain.
- Create floodplain ordinances.

Medium Priority

- Consider mitigation options for homes repeatedly flooded.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Blackfeet Reservation

High Priority

- Consider flood proofing options for critical facilities located in floodplain.

Medium Priority

- Install backflow valves at homes in floodplain.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Blackfeet Reservation

Medium Priority

- Consider structural projects such as diversions or levees to protect Tribal infrastructure located in floodplain from damage.

Blaine County

High Priority

- Install culverts on sections of road impacted by flooding.

Fort Belknap Reservation

Medium Priority

- Install larger concrete culverts in Lodgepole.
- Install culverts on sections of road impacted by flooding.

Glacier County

Medium Priority

- Install culverts in areas where flooding could cause potential significant losses.

Hill County

Low Priority

- Repair Henry Bridge near Box Elder and eliminate culverts.

Liberty County

High Priority

- Increase the hydraulic capacity of Cottonwood Creek floodway by re-channeling flow through the BNSF reservoir.
- Increase the hydraulic capacity of Cottonwood Creek floodway by removing debris that is impeding water flow.

Medium Priority

- Protect the bridge abutments from water erosion on the county's historic Pubsley Bridge over the Marias River.

Pondera County

Medium Priority

- Install culverts in areas where flooding could cause potential significant losses.

Rocky Boy's Reservation

Medium Priority

- Perform maintenance (clean out wood debris) on drainage systems below dams.
- Consider flood proofing options for Box Elder School located in floodplain.
- Install backflow valves at homes in floodplain.
- Secure propane and/or fuel tanks at homes in floodplain.
- Consider structural projects such as diversions to protect Tribal infrastructure located in floodplain from damage.
- Install larger culverts on sections of road impacted by flooding.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Blackfeet Reservation

Medium Priority

- Complete floodplain mapping and elevation survey of structures in the floodplain.

Glacier County

Medium Priority

- Conduct educational awareness of NFIP with the general public.

Low Priority

- Map flood prone areas.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Pondera County

Medium Priority

- Conduct educational awareness of NFIP with the general public.

Low Priority

- Map all areas prone to flood.

Rocky Boy's Reservation

High Priority

- Complete floodplain mapping.
- Enter in to National Flood Insurance Program.
- Complete elevation survey of structures in the floodplain.

Toole County

Medium Priority

- Ensure professional administration of the program.
- Resolve status of Sunburst with respect to NFIP.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Blackfeet Reservation

Medium Priority

- Equip dams with sirens to alert downstream residents of impending breach.
- Install movement sensors on faces of dams to detect pending failure.
- Evaluate structural soundness of dams.

Rocky Boy's Reservation

Medium Priority

- Install movement sensors on face of Bonneau Dam to detect pending failure.

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Blackfeet Reservation

High Priority

- Inspect emergency shelters to make sure they are structurally sound to support snow loads.

Medium Priority

- Relocate power underground where possible.
- Negotiate with utility companies for replacement of weak or rotten power poles.
- Identify emergency shelters in each community.
- Obtain generators for schools to maintain power supply during winter.
- Obtain mobile generators for emergency shelters.
- Install markers on fences to determine mileages so peoples residences can be found for rescue purposes.
- Upgrade lighting system at airport.
- Improve communication amongst emergency response and road department during extreme winter weather.
- Develop coordinated management strategies for de-icing roads; plowing snow, clearing roads of fallen trees, and clearing debris .
- Create partnerships with utility companies and negotiate for shorter span distances between power poles to better withstand snow loads and severe storms.

Fort Belknap Reservation

Medium Priority

- Create partnerships with utility companies and negotiate for shorter span distances between power poles to better withstand snow loads and severe storms.
- Inspect emergency shelters to make sure they are structurally sound to support snow loads.
- Install markers on fences to determine mileages so peoples residences can be found for rescue purposes.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Fort Belknap Reservation

Medium Priority

- Obtain mobile generators for emergency shelters.
- Construct an indoor maintenance facility for the Tribal Road Department so equipment will be operational when its needed.

Glacier County

Medium Priority

- Emergency plans for special needs facilities.
- Heating systems for special needs facilities.
- Sheltering program.
- Disaster supply kits for special needs facilities.

Pondera County

Medium Priority

- Assist special needs facilities in the development of disaster supply kits.
- Assist special needs facilities in the development of emergency plans.
- Work with special needs populations on alternative heating systems.
- Coordinate with volunteer agencies regarding sheltering during severe weather.

Rocky Boy's Reservation

High Priority

- Create partnerships with utility companies and negotiate for shorter span distances between power poles to better withstand snow loads and severe storms.

Medium Priority

- Install markers on fences to determine mileages so peoples residences can be found for rescue purposes.
- Construct an indoor maintenance facility for the Tribal Road Department so equipment will be operational when its needed.
- Obtain mobile generators for emergency shelters.
- Provide training to Roads Department personnel to enhance coordination during storm events.
- Identify emergency shelters in each community.
- Improve communication amongst emergency response and road department during extreme winter weather.
- Develop coordinated management strategies for de-icing roads; plowing snow, clearing roads of fallen trees, and clearing debris.
- Obtain generators for schools to maintain power supply during winter.
- Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary.

Low Priority

- Relocate power underground where possible.

Toole County

Medium Priority

- Develop policy and procedures on warning Kevin residents.
- Develop policy and procedures on warning Shelby residents.
- Develop policy and procedures on warning Sunburst residents.
- Identify key facilities in the county and obtain weather radios for each facility.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Glacier County

High Priority

- Education program for family disaster plan and disaster supply kits.
- Education program on NOAA weather radio.
- Education program on severe weather and its risks.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Pondera County

High Priority

- Promote awareness of NOAA Weather radio.
- Conduct education program for family disaster plan and preparing disaster supply kits.
- Conduct education programs on severe weather and associated risks.

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.1 - Increase community capabilities to mitigate summer weather hazards.

Blackfeet Reservation

High Priority

- Install safety film on windows at critical facilities to prevent shattering of glass.

Fort Belknap Reservation

High Priority

- Obtain shatterproof film for windows at critical facilities.

Rocky Boy's Reservation

Medium Priority

- Install safety film for windows at critical facilities to prevent shattering of glass.

Toole County

Medium Priority

- Purchase and install two additional warning sirens in Shelby.

Low Priority

- Practice and exercise the procedures for warning residents.

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Blackfeet Reservation

Medium Priority

- Plan alternate evacuation routes for instances when trains block intersections.
- Provide hazardous material training to emergency responders.
- Develop an emergency transportation plan that considers key roadways and railroad intersections.

Blaine County

High Priority

- Provide Haz-Mat training to fire departments.
- Develop warning system for train derailments involving hazardous materials.

Medium Priority

- Provide awareness training to county residents on how to respond to train derailments involving hazardous materials.

Low Priority

- Obtain SCBA units for Chinook fire department as a priority and all departments.

Fort Belknap Reservation

Medium Priority

- Provide training to emergency responders on how to deal with methamphetamine labs.
- Develop an emergency transportation plan that considers key roadways and intersections.

Hill County

High Priority

- Provide additional Haz-Mat training to fire departments.

LOCAL MITIGATION PROJECTS

DES DISTRICT 2

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Liberty County

Medium Priority

- Educate residents on their rights related to evacuation, also what they can and should be prepared to bring and what should be left behind.
- Educate people on sheltering-in-place.
- Building on the Evacuation Annex in the Emergency Operations Plan, develop several evacuation scenarios for Chester and plan for them.

Toole County

Medium Priority

- Develop an evacuation plan for Shelby.
- Complete the work on the inside of the County Search and Rescue (SAR) building in Shelby.
- Educate people on sheltering-in-place.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Fort Belknap Reservation

Medium Priority

- Improve mapping of hazardous materials fixed site locations and common transportation routes.

GOAL 9 - Reduce potential earthquake losses in seismically prone areas.

OBJECTIVE 9.2 - Educate the public in earthquake mitigation and readiness.

Glacier County

Medium Priority

- Assist schools/daycares to protect students from earthquake hazards.

Pondera County

Medium Priority

- Education program of schools and daycares.

OBJECTIVE 9.4 - Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards.

Glacier County

Medium Priority

- Promote use of shatterproof windows in schools and daycares.
- Promote tie down program for schools and daycares.

Pondera County

Medium Priority

- Tie down program for schools and daycares.
- Shatter proofing of windows in schools and daycares.

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Blaine County

Medium Priority

- Coordinate mosquito control efforts with Fort Belknap.

Fort Belknap Reservation

Medium Priority

- Implement protocol for chemical applications in mosquito breeding grounds.
- Purchase mosquito control equipment to use during public events.
- Provide outreach on how to avoid West Nile Virus exposure.
- Coordinate mosquito control efforts with Blaine and Phillips counties.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

APPENDIX D

DISTRICT 3 DOCUMENTATION

Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Projects

SOUTHWEST MONTANA JURISDICTIONS

Beaverhead County
Broadwater County
Gallatin County
Jefferson County
Lewis and Clark County
Madison County
Meagher County
Park County
Sweet Grass County

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 2/23/07

LOCATION: Bozeman

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Adam Edelmann	MSU - IT Security Manager	4	aedelmann@montana.edu
Peddy Kalakayan	GAOHD Emergency Prep. Coord	1	peddy.kalakayan@gaohd.mt.gov
Gleau Puffer	MSU - Student Affairs	5	gpuffer@montana.edu
Buck Taylor	Director, Gallatin Community Clinic Bozeman FIRE DEPT	1	taylor8@chphealth.org
Jason Shrauger	Gallatin Co Emer. Mgmt.	1	jshrauger@bozeman.mt.net
Kent Atwood	MT-DES.	NA	Katwood@mt.gov
Mary Bell	Tetra Tech		mary.bell@tetra-tech.com
Daphne Digrindakis	Tetra Tech		dphne.digrindakis@tetra-tech.com
LARRY B. ALERS	Tetra Tech	90	alpb@tixi.net

Meeting State Time: 12:30

Meeting End Time: 2:30

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 12 MARCH 2007

LOCATION: Dillon, MT

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
LARRY B. AKERS	Tetra Tech		
Judi Johnson	State of MT - Heritage Comm	110	juljohnson@mt.gov
Gary Anderson	" "	110	JAnderson@mt.gov
ARCHIE MATTHEWS	GRASSHOPPER VOL F.D	90	jka3541@smtel.com
Scott Marsh	BVHD Co.		Smarsk@co.beauregard.mt.us
Frank Mastandrea	BVHD Co.		FMASSTANDREA@co.beauregard.mt.us
Daphne Digeindakis	Tetra Tech	NA	daphne.digeindakis@tetra-tech.com
KENT ATWOOD	MT-DES	NA	Kentwood@mt.gov
Larry Lakner	BVHD Co DES	NA	llakner@co.beauregard.mt.us
Tom Rice	BVHD Co DES		
GARY HANGLUND	BVHD CO DES		
Mandy Malesich	MAYOR - Dillon	NA	mayor@dillonmt.org

Meeting State Time: 12 Noon

Meeting End Time: 1400

DATE: 3/12/07

LOCATION: Dillon, MT

[illegible]

Meeting State Time: 12:00

Meeting End Time: 14:00

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE DISTRICT 3 - LOCAL MEETING

DATE: April 20, 2007

LOCATION: Helena, Montana

Name	Jurisdiction/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Valentine D. Swords	Lewis & Clark City-County Health Dept L & C Co / Preparedness Pl. Spec.	4	vswords@co.lewis-clark.mt.us
Jim Murphy	State Health Dept.	0	jmurphy@mt.gov
Alan Stine	Olympus Technical Services		astine@olytech.com
Brett Friede	Sgt - Lewis & Clark County Sheriff's Office	0	447-8293
Lou Antonick	State of Montana - Dept. of Admin Emergency Mgmt. Specialist	0	loantonick@mt.gov 444-1462
JEFF ADAMS	MR. RL, TRANSMASTER, SPARKSON - LUMIN	0	JADAMS@MT.RAIL.COM 447-2357
Clint Loobey	Yellowstone Pipeline, ConocoPhillips Area Supervisor	2	clint.B.Loobey@conocoPhillips.com 442-6395 x20
Cindy Bender	Vol. American Red Cross Lewis & Clark	0	cbender@mt.gov 461-2861
Rocky Infanger	Wolf Creek/Craig Fire Service Area Fire Chief	40	rocky@3riversdhs.net
Kevin Skaklure	Gen. Mgr KMTX Am/Fm / LEPC member	0	ksskaklure@kmtxradio.com
Randy Lilje	City of Helena, Parks	2	rlilje@ci.helena.mt.us
Eric Spangenberg	City of Helena / L3 Co. GIS	0	espangenberg@co.lewis-clark.mt.us

Meeting End Time:

0

Meeting Start Time:

0

PAUL SPENGLER
L & C Co DES

pspengler@co.lewis-clark.mt.us

PAUL SPENGLER
L & C Co DES

0

0

max@lewis-clark.mt.us

MT OPS

MT OPS

**MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE
DISTRICT 3 - LOCAL MEETING**

DATE: April 20, 2007

START 1:30 pm
FINISH 3:30 pm

LOCATION: Helena, Montana

Name	Affiliation/Title (Agency, Office)	Jurisdiction/Title (Agency, Office)	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
New Johnson	FEMA 8 Mitigation Div	Denver CO		nan.johnson@adhs.gov
Daphne Digrindakis	Tetra Tech	Tetra Tech		daphne.digrindakis@tetra-tech.com
Shirley Hovgen	City of Helena	City of Helena		Shanson@ci.helena.mt.us
BRANDT SALD	CITY OF HELENA	CITY OF HELENA		bsaloc@ci.helena.mt.us
Beth Norberg	County Health	County Health		bnorberg@co.lewis-clark.mt.us
Frank Prosser	LEC County Health	LEC County Health		Fprosser@co.lewis-clark.mt.us
KELLY BLAKE	COUNTY PLANNING	COUNTY PLANNING		Kblake@co.lewis-clark.mt.us
Paul Pitz	City County Historic Preservation	City County Historic Preservation		PPITZ@co.lewis-clark.mt.us
David L. Miller	Co. DES / DP445-5242	Co. DES / DP445-5242		blmiller@mt.gov
Sunny Stiger	LEC County Rural Fire Council	LEC County Rural Fire Council		stiger@ci.helena.mt.us
Sandra Flare	LEC DES	LEC DES		stiger@ci.helena.mt.us
Dave Teseritz	LEC Co. Health Administrator	LEC Co. Health Administrator		dteseritz@ci.helena.mt.us
Mark Leum	Helena P.A. A&S	Helena P.A. A&S		MLaum@ci.helena.mt.us
Michael McHugh	LEC County Planning	LEC County Planning		mcmhugh@co.lewis-clark.mt.us
Meeting Start Time:	LEC Co Water Quality Res. Dist.	LEC Co Water Quality Res. Dist.	Meeting End Time:	Jwilliams@co.lewis-clark.mt.us
Tim Wilbur	MT. DEQ / Solid Waste Pgm.	MT. DEQ / Solid Waste Pgm.	5 mi	pcrowley@mt.gov
F. Patrick Crowley	LEC Co. Council	LEC Co. Council		mpnelson@ci.helena.mt.us
M.E. "Mick" Nelson	LEC Co. Council	LEC Co. Council		mpnelson@ci.helena.mt.us



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Friday, February 23, 2007

Time: 12:30 pm – 2:30 pm

Place: EOC Bozeman, Montana

Meeting Attendance:

Adam Edelman, MSU-Bozeman, IT Security Manager

Betty Kalakay, Gallatin Co.- Comm. Health Department, Emergency Preparedness
Coordinator

Glenn Puffer, MSU-Bozeman, Student Affairs

Buck Taylor, Gallatin Community Clinic, Director

Jason Shrauger, Bozeman Fire Department, Gallatin County Emergency Management

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

Mary Bell, Contractor

HAZARDS AFFECTING DISTRICT 3

Meeting Discussion on Hazards Affecting District 3

Possible addition of Communicable Disease hazard. This hazard could cover bioterrorism and biological disasters (instead of bioterrorism) because it's very broad. It was noted that the 10 hazards discussed have an economic impact and communicable disease should definitely be on the hazard list. Participants also discussed communicable disease's economic impact on livestock and agriculture.

Possible addition of IT Infrastructure hazard. This includes telecommunications, waste water systems, etc.; all of these are supported by a system. Ignoring steps needed to prevent failure of major IT infrastructure increases risk. The economic impact of connectivity loss due to long term power outages must be considered. Dick Clark, State CIO State Network, should be contacted for a better representation and further discussion of the actual risk involved in the failure of a major section of the IT infrastructure. Discussion considered if local systems were robust enough to support systems if information trunks were not prepared for disaster and failed. Weak lines in cities should be addressed and opportunities for mitigation should be examined. Participants asked what they could do to strengthen the IT infrastructure. For example, if an IT trunk was located within a floodplain, a project could be implemented to reduce risk. It was also noted that State run data networks are generally located in the same physical area (such as I-90) and there is a need to implement more redundancy centers to maintain systems in case of disaster.

Participants felt that all hazards covered in local and university plans should be covered in the State plan. The addition of a Communicable Disease and IT Infrastructure hazard would mitigate potential loss of life and property and reduce community impact.

ASSESSMENT OF HAZARDS – DISTRICT 3

Drought

Lewis & Clark - Low
Jefferson – Not Assessed
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – High
Madison – Not Assessed
Gallatin – High
Park – High
Sweetgrass – Low

Earthquake

Lewis & Clark - Medium
Jefferson – High
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – High
Madison – Medium
Gallatin – High
Park – Medium
Sweetgrass – Low

Participants inquired why the Earthquake risk rating wasn't high for all of District 3.

Flood

Lewis & Clark - High
Jefferson – High
Broadwater – Low
Meagher – No Approved Plan
Beaverhead – High
Madison – Medium
Gallatin – Medium
Park – High
Sweetgrass – Medium

Participants agreed that the medium risk rating for flood in Gallatin County is very accurate. It was noted that there has been no building within the 100 year floodplain which helps reduce the overall risk.

Hazardous Material Incident

Lewis & Clark - Low
Jefferson – High
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – Medium
Madison – Medium
Gallatin – High
Park – High
Sweetgrass – Medium

It was noted that Gallatin County is at higher risk for a hazardous material incident because of the railroad and university research.

Landslide

Lewis & Clark - Low
Jefferson – Not Assessed
Broadwater – Low
Meagher – No Approved Plan
Beaverhead – Not Assessed
Madison – Not Assessed
Gallatin – Medium
Park – Medium
Sweetgrass – Low

Severe Thunderstorm, Hail, Wind and Tornadoes

Lewis & Clark - Medium
Jefferson – Not Assessed
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – High
Madison – Not Assessed
Gallatin – Medium
Park – Medium
Sweetgrass – High

Discussion questioned Park County rating as this county has some of the state's highest wind speeds on record.

It was also suggested that this hazard be split into a Wind/Tornado hazard and a Thunderstorm hazard.

Terrorism and Violence

Lewis & Clark – Not Assessed
Jefferson – Not Assessed
Broadwater – Low
Meagher – No Approved Plan

Beaverhead – Low
Madison – Low
Gallatin – Low
Park – Low
Sweetgrass – Low

Discussion noted that the University is a target for terrorism and violence due to the types of genetic research conducted. The Department of Homeland Security ranks Gallatin County as second in the state at risk for this hazard. Locally, Gallatin County is at a relatively low risk but when weighted against the rest of the state, terrorism is high because of the research conducted at the University.

Participants felt that Terrorism and Violence ranking should come from the State Annex.

Volcanic Eruption

Lewis & Clark – Not Assessed
Jefferson – Not Assessed
Broadwater – Low
Meagher – No Approved Plan
Beaverhead – Not Assessed
Madison – Not Assessed
Gallatin – Low
Park – Low
Sweetgrass – Low

Wildfire

Lewis & Clark - High
Jefferson – High
Broadwater – High
Meagher – No Approved Plan
Beaverhead – High
Madison – High
Gallatin – High
Park – High
Sweetgrass – High

Winterstorm

Lewis & Clark - Low
Jefferson – Not Assessed
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – High
Madison – Not Assessed
Gallatin – Medium
Park – Medium
Sweetgrass – Low

Participants felt that the medium risk rating for Gallatin County is accurate.

ASSESSMENT OF STATE GOALS – DISTRICT 3

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Discussion noted that the Hyalite Dam project is missing from list of flood mitigation projects.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Suggestions for regional and district wide project included wildfire and IT infrastructure projects.

Goal 5: Reduce potential earthquake losses in Western Montana.

It was noted that the University needs to apply to FEMA for funding to retrofit buildings for earthquake mitigation.

Goal 6: Minimize economic impacts of drought.

Goal 7: Reduce impacts from severe winter weather.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

OTHER COMMENTS

Education is on-going in Gallatin County. At this time, there are no active mitigation projects completed or outdated. All projects are valid at this time.

Participants suggested that for future meetings, invitations and the responsibilities of the host need to be clearer. It was suggested that the University could provide a video conference to notify other universities of upcoming meetings and encourage them to attend. The University could also e-mail the entire university system.

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Monday, March 12, 2007

Time: 11:55 am – 2:00 pm

Place: Dillon, Montana

Meeting Attendance:

Julie Johnson, State of Montana - Montana Heritage Commission

Jim Carpita, State of Montana - Montana Heritage Commission

Archie Matthews, Grasshopper VFD

Scott Marsh, Beaverhead County

Frank Mastaudrea, Beaverhead County

Larry Laknar, Beaverhead County DES

Tom Rice, Beaverhead County Commission

Garth Haugund, Beaverhead County Commission

Marty Malesich, Mayor of Dillon

JS Turner, City of Dillon - Director of Operations

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 3

Meeting Discussion on Hazards Affecting District 3

Possible addition of Pine Beetle Infestation hazard which adds to deadwood and fire fuel loading.

Possible addition of Brucellosis hazard which is a concern to local ranchers who suspect bison and elk may be carrying the disease. If a brucellosis outbreak occurred, the economic impact to ranching would be great. Brucellosis is on Beaverhead County's hazard watchlist.

Possible addition of Pandemic Disease hazard that would include shelters and quarantine options.

ASSESSMENT OF HAZARDS – DISTRICT 3

Drought

Lewis & Clark – Low

Jefferson – Not Assessed

Broadwater – Medium

Meagher – No Approved Plan

Beaverhead – High

Madison – Not Assessed

Gallatin – High
Park – High
Sweetgrass – Low

Beaverhead County is rated high for drought hazard. Madison County participants noted that land on the west side is quickly being developed with suburbs and homes. These structures may pose a fire risk. Drought conditions on the Ruby Range side are still a concern.

Earthquake

Lewis & Clark – Medium
Jefferson – High
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – High
Madison – Change Medium to High
Gallatin – High
Park – Medium
Sweetgrass – Low

Beaverhead County still felt they are at high risk for earthquakes. Madison County participants felt that their risk for earthquakes should be upgraded to high.

Flood

Lewis & Clark – High
Jefferson – High
Broadwater – Low
Meagher – No Approved Plan
Beaverhead – High
Madison – Change Medium to High
Gallatin – Medium
Park – High
Sweetgrass – Medium

Beaverhead County still felt they are at high risk for floods. Madison County participants felt that their risk for flood should be upgraded to high.

Hazardous Material Incident

Lewis & Clark – Low
Jefferson – High
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – Medium
Madison – Medium
Gallatin – High

Park – High
Sweetgrass – Medium

Both Beaverhead and Madison counties agreed that their Hazardous Material Incident rating should remain at medium.

Landslide

Lewis & Clark – Low
Jefferson – Not Assessed
Broadwater – Low
Meagher – No Approved Plan
Beaverhead – Not Assessed
Madison – Not Assessed
Gallatin – Medium
Park – Medium
Sweetgrass – Low

Beaverhead and Madison counties noted that landslides are not considered a hazard.

Severe Thunderstorm, Hail, Wind and Tornadoes

Lewis & Clark – Medium
Jefferson – Not Assessed
Broadwater – Medium
Meagher – No Approved Plan
Beaverhead – High
Madison – Change from Not Assessed to High
Gallatin – Medium
Park – Medium
Sweetgrass – High

Madison County participants noted that the Ennis and Norris areas are very windy and this hazard should be upgraded to high.

Terrorism and Violence

Lewis & Clark – Not Assessed
Jefferson – Not Assessed
Broadwater – Low
Meagher – No Approved Plan
Beaverhead – Low
Madison – Low
Gallatin – Low
Park – Low
Sweetgrass – Low

Beaverhead and Madison counties did not suggest any change to their low risk rating for terrorism and violence but speculated that major ski areas or high value homes may be targets for terrorism.

Volcanic Eruption

Lewis & Clark – Not Assessed

Jefferson – Not Assessed

Broadwater – Low

Meagher – No Approved Plan

Beaverhead – Change from Not Assessed to Low

Madison – Not Assessed

Gallatin – Low

Park – Low

Sweetgrass – Low

Beaverhead County participants noted that ashfall from Mt. St. Helens is discussed in their plan and suggested the risk be changed from not assessed to low. Additionally, they noted that the County has a warning system in place and that trying to mitigate an eruption from Yellowstone would not be worth the effort as such an eruption would be catastrophic.

Wildfire

Lewis & Clark – High

Jefferson – High

Broadwater – High

Meagher – No Approved Plan

Beaverhead – High

Madison – High

Gallatin – High

Park – High

Sweetgrass – High

Both counties noted that the wildfire hazard is still very high in District 3 and changes in risk were not necessary.

Winterstorm

Lewis & Clark – Low

Jefferson – Not Assessed

Broadwater – Medium

Meagher – No Approved Plan

Beaverhead – High

Madison – Change from Not Assessed to High

Gallatin – Medium

Park – Medium

Sweetgrass – Low

Beaverhead County did not require any changes in their high risk rating for winterstorms. Madison County noted that winterstorms cause a lot of traffic accidents and requested their risk be upgraded to medium or high.

ASSESSMENT OF STATE GOALS – DISTRICT 3

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Beaverhead and Madison counties felt that Goal 1 and Goal 2 are too generic and more appropriate as part of a mission statement or objectives in each goal.

Goal 2: Increase State's capability to provide mitigation opportunities.

Beaverhead and Madison counties felt a state legislator should propose a bill to start a State Mitigation plan that is funded with \$250,000 every year to help smaller Montana communities afford matching funds for PDMC projects.

Another objective was suggested that concerned the natural mosaic or forest health.

Goal 3: Mitigate the potential loss of life and property from flooding.

Beaverhead County has current ongoing flood mitigation projects.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Beaverhead County has five valid wildfire projects.

Madison County has no wildfire projects.

Goal 5: Reduce potential earthquake losses in Western Montana.

Beaverhead County is expecting seismic assessment from Western University. They also anticipate projects from some of the local schools.

Madison County still has many high priority seismic projects. They also suggested that historic structures be identified and protected in County and/or State plans.

Goal 6: Minimize economic impacts of drought.

Beaverhead County has three drought projects. They acknowledge that economically drought is the worst hazard the County faces but finds it hard to mitigate except through public education and awareness.

Goal 7: Reduce impacts from severe winter weather.

Beaverhead County has one mitigation project that concerns the installation of an automated weather site in Wisdom.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

Beaverhead and Madison counties felt that this goal needs to be split out and should also include Hazardous Material Incidents and severe summer weather (thunderstorms, hail, wind and tornadoes).

The counties suggested the combination of severe winter and summer events. However, it was discussed that FEMA wants to keep winter and summer storms as separate hazards.

OTHER COMMENTS

Participants noted that the State Plan should present a risk assessment formula for each hazard that can be used by local jurisdictions. Risk can then be compared in a similar fashion.

Beaverhead and Madison counties suggested the addition of an objective to Annex of the State EOP and Terrorism & Homeland Security Annex that addresses hazardous materials incidents and their consequences. An objective or goal should be added to the State Plan that references these annexes. Additionally, the EOC Terrorism/Security Annex Mitigation actions should be included in the State Mitigation Plan.

It was also suggested that FEMA and the Dept. of Homeland Security need to unify grants to reflect the cause and effect for Terrorism and Violence and mitigation responses. The agencies also need to simplify requirements on local jurisdictions to integrate the PDM into other plans.

On the State level, it was suggested that plan requirements be unified into one document to minimize burden on local jurisdictions across the state.

Beaverhead and Madison counties were urged to think about applying for a PDMC planning grant for next year since their PDM plan 5 year update is due October 2009.

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Friday, April 20, 2007

Time: 1:30 pm – 3:30 pm

Place: Helena, Montana

Meeting Attendance:

Valentine D. Sworts, Lewis and Clark County Health Dept./County Preparedness Plan

Jim Murphy, Montana State Health Department

Alan Stine, Haz-Mat Contractor, Olympus Technical Services

Brett Friede, Lewis and Clark County Sheriff's Office

Lou Antonick, State of Montana, Dept. Admin. Emergency Management Specialist

Jeff Adams, Montana Rail Link

Clint Loobey, Yellowstone Pipeline Company

Cindy Bender, Lewis and Clark County American Red Cross

Rocky Infanger, City of Wolf Creek Fire Dept.

Kevin Skaalure, KMTX Radio/LEPC member

Randy Lilje, City of Helena Parks Dept.

Eric Spangenberg, City of Helena GIS

Paul Spengler, Lewis and Clark County DES Coordinator

Pat McKelvey, Lewis and Clark County Deputy DES Coordinator

Nan Johnson, FEMA Region 8

Sharon Hagen, City of Helena Community Development Director

Brandt Salo, City of Helena Building Dept.

Beth Norberg, Lewis and Clark County Health Dept.

Frank Presker, Lewis and Clark County Health Dept.

Kelly Blake, Lewis and Clark County Planning Dept.

Paul Putz, City of Helena-Lewis and Clark County Historic Preservation

Brian LaMoure, County DES/DPHHS

Sunny Stiger, Lewis and Clark County Rural Fire

Sandra Hare, Lewis and Clark County DES

Dave Jeseritz, Lewis and Clark County 911 Administrator

Mark Lerum, City of Helena Police Dept.

Michael McHugh, City of Helena Planning Dept.

Jim Wilbur, Lewis and Clark County Water Quality Protection District

F. Patrick Crowley, State of Montana Dept. Environmental Quality Solid Waste Program

Mickey Nelson, Lewis and Clark County Coroner

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

HAZARDS AFFECTING LEWIS AND CLARK COUNTY

Pandemic catastrophic disease was discussed. It was suggested that a Public Health message be broadcast everyday to mitigate this hazard. The message would urge people to frequently wash their hands, stay home if sick, etc.

Dept. of Livestock has also developed plans to deal with livestock diseases. There is an Agriculture Emergency Preparedness Committee. Agriculture is Montana's primary business and many diseases are zoonotic, transmissible from animals to humans. Naturally occurring diseases (e.g., anthrax) also pose a threat; this could be natural or introduced through bio-terrorism.

Another possible threat to Montanans is non-resident developers and landowners who are ignorant about wildfire and flood hazards. It was suggested that the updated State Plan should emphasize outreach and education.

Participants discussed the difference between mitigation, preparedness and education. It was concluded the county needs to start thinking about long term mitigation.

The Internet and continuity of operations was also discussed.

A major earthquake in Helena would require long-term recovery. It was noted that more long-term seismic mitigation projects need to be done as very little has been done to date.

Participants were asked which of the ten hazards are considered to be top priorities:

1. Wildfire
2. Earthquake
3. Hazardous Material Incident
4. Flooding

ASSESSMENT OF HAZARDS

Drought

Lewis and Clark County was rated as low risk because the authors of the local plan decided to concentrate on the three or four major risks to the county population. The agricultural community in Lewis and Clark County would disagree that drought is high. Drought is tough to mitigate. It is also an integral part of wildfire and should be tied to this hazard in some way. Lewis and Clark County should be upgraded to medium risk for purposes of the State Plan Update.

Earthquake

Lewis and Clark County is rated as medium risk for earthquakes. The probability is low but the impact is high. The local plan authors judged it medium risk due to the low probability. The risk to the Helena area is much higher than Augusta. Participants asked if critical facilities (state facilities, refineries, pipelines, etc.) factor into the hazard ratings. Due to the nature of the multi-jurisdictional plan, the answer was yes and no. Participants agreed that Lewis and Clark County should be upgraded to high risk for this hazard. Even though the probability is low, a 10% chance of getting a large earthquake is

still a catastrophic event. Seismic activity can be mitigated and work needs to be done immediately. The Helena School District should apply to the PDMC program for seismic mitigation projects. Participants felt that the entire seismic zone in the state should be upgraded to high risk.

Flooding

Lewis and Clark County is rated as high risk for flooding. The participants did not request any changes to this rating but suggested the consideration of flooding at superfund sites.

Hazardous Material Incident

The County is rated as low risk for this hazard. Participants were concerned about superfund sites and wondered if they are factored into risk. Flooding in the upper Ten Mile Creek area would impact arsenic piles and old mining piles. Prickly Pear Creek runs through Asarco. Concern was also expressed over the number of trains carrying hazardous materials that pass through Helena everyday. Participants agreed that risk for Lewis and Clark County should be upgraded to high considering transportation corridors, superfund sites, Fort Harrison munitions, etc. It was wondered if response teams affect the ranking of a hazard; they do not affect the risk rating.

Landslide

Lewis and Clark County is rated as low risk for landslides. A point of concern is the Wolf Creek area. If an earthquake hit this area, residents would be cut off from transportation routes and emergency services.

Severe Thunderstorm, Hail, Wind and Tornado

The County has a medium risk rating for this hazard. Participants did not suggest any changes.

Terrorism and Violence

This hazard was not assessed by Lewis and Clark County. Participants discussed the fact that today is the anniversary of the Columbine shootings and suggested the rating be upgraded to medium risk.

Volcanic Eruption

Lewis and Clark County did not assess this hazard because the risk and probability are low. Participants noted that a Yellowstone caldera event would heavily impact the County and the Mt. St. Helen's ashfall was mostly a nuisance versus a hazard. It was noted that the volcanic eruption hazard is addressed in Lewis and Clark's Emergency Operations Plan. Participants felt this hazard should be upgraded to low risk.

Wildfire

Participants noted that the state needs to address this hazard as a high fuels hazard. It is important to get federal partners to address this as a very high mitigation need. Global warming is going to worsen drought and develop longer fire seasons. Fire risk increases with people building homes in the WUI. Montana Senate Bill #51 addressed building in

the WUI and mitigation to zone or pay. However, counties objected to this as an unfunded mandate. The state may withhold grants from counties unless they get more proactive (e.g., zoning, 2-ways out and no cedar roofs). Federal partners (Forest Service, the BLM and the National Park Service) need to do more mitigation and the State Plan should emphasize this as a mitigation strategy.

It was also suggested that High Fuel be added to the hazards list and that a statewide fuels map be included in the State Plan Update.

Future development mitigation is a component of the State PDM Plan; participants wondered if this could be tied to High Fuel hazard and mitigation. Forest Health and Fuel Mitigation is already an integral part of the Climate Change Advisory Council's recommendations to the Governor. These recommendations need to be integrated into the State Plan.

Winterstorm

This hazard is rated as low risk since winterstorms haven't been a major problem.

DISCUSSION OF MITIGATION PROJECTS

The South Hills Fuel Mitigation PDMC 2007 project has been submitted. Priest Past and Ten Mile Watershed fuel reduction project is in progress. A potential PDMC project concerns the wooden water flume to Ten Mile treatment plant.

Helena School District will be applying for a PDMC seismic project. It was questioned if any other state facilities or structures in the county needed to be mitigated. It was noted that Carroll College sits on a fault zone; however, the college is private.

The topic of flooding projects was discussed and it was noted that the bridge at Kerr Drive has been completed.

The condition of the State Capitol was also discussed; issues that need to be addressed include squirrel mitigation and critical infrastructure. Participants asked if a Tier 1 seismic survey has been completed for the Capitol. It was noted that the survey has not been completed to date. FEMA will not pay for this survey; however, it needs to be done prior to applying for any seismic projects.

Participants wondered when the City of Helena/Lewis and Clark County adopted seismic building codes. It was noted that this was done in the 1970s. Better codes developed over time so there is some variation. Participants also questioned if the city/county has done any seismic retrofits. Some have been done at the city shop area. Participants wondered about work durability. If work was completed over 10 years ago, does it need to be redone?

Discussion returned to the topic of flooding and questioned if the state needed to do any projects. It was noted that the river setback bill (250 ft from major rivers) was defeated

in the current state legislature. It is the counties responsibility to enact setback ordinances. It was suggested that the State needs to do land use plans. Lewis and Clark County has them to protect people. The State needs to have this as a goal or objective in the State Plan Update.

It was observed that the State currently does not prohibit building on a known fault zone. No development permits are required. It was wondered if Montana needs state building codes. Perhaps this could be a goal or objective in the State Plan Update. Additionally, active faults across the state need to be mapped (they are in Lewis and Clark County).



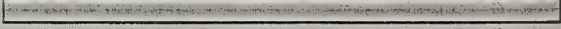


**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results

What jurisdiction type do you represent?		
	Response Percent	Response Count
Federal <input type="checkbox"/>	7.8%	4
State <input type="checkbox"/>	19.6%	10
County <input type="checkbox"/>	41.2%	21
Tribal <input type="checkbox"/>	0.0%	0
Public Utility <input type="checkbox"/>	3.9%	2
General Public <input type="checkbox"/>	9.8%	5
Other (please specify) <input type="checkbox"/>	25.5%	13
answered question		51
skipped question		1

What County/Tribal Community do you represent or as a private citizen where do you live?		
	Response Percent	Response Count
Blackfeet <input type="checkbox"/>	0.0%	0
Crow <input type="checkbox"/>	0.0%	0
Flathead <input type="checkbox"/>	0.0%	0
Fort Belknap <input type="checkbox"/>	0.0%	0
Fort Peck <input type="checkbox"/>	0.0%	0
Northern Cheyenne <input type="checkbox"/>	0.0%	0
Rocky Boy's <input type="checkbox"/>	0.0%	0
Beaverhead <input type="checkbox"/>	0.0%	0
Big Horn <input type="checkbox"/>	0.0%	0
Blaine <input type="checkbox"/>	0.0%	0
Broadwater <input type="checkbox"/>	1.9%	1
Carbon <input type="checkbox"/>	0.0%	0
Carter <input type="checkbox"/>	0.0%	0
Cascade <input type="checkbox"/>	0.0%	0
Chouteau <input type="checkbox"/>	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Custer		0.0%	0
Daniels		0.0%	0
Dawson		0.0%	0
Deer Lodge		0.0%	0
Fallon		0.0%	0
Fergus		0.0%	0
Flathead		0.0%	0
Gallatin		3.9%	2
Garfield		0.0%	0
Glacier		0.0%	0
Golden Valley		0.0%	0
Granite		0.0%	0
Hill		0.0%	0
Jefferson		5.8%	3
Judith Basin		0.0%	0
Lake		0.0%	0
Lewis And Clark		80.8%	42
Liberty		0.0%	0
Lincoln		0.0%	0
Madison		5.8%	3
McCone		0.0%	0
Meagher		0.0%	0
Mineral		0.0%	0
Missoula		0.0%	0
Musselshell		0.0%	0
Park		1.9%	1
Petroleum		0.0%	0
Phillips		0.0%	0
Pondera		0.0%	0
Powder River		0.0%	0
Powell		0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie	0.0%	0
Ravalli	0.0%	0
Richland	0.0%	0
Roosevelt	0.0%	0
Rosebud	0.0%	0
Sanders	0.0%	0
Sheridan	0.0%	0
Silver Bow	0.0%	0
Stillwater	0.0%	0
Sweet Grass	0.0%	0
Teton	0.0%	0
Toole	0.0%	0
Treasure	0.0%	0
Valley	0.0%	0
Wheatland	0.0%	0
Wibaux	0.0%	0
Yellowstone	0.0%	0
Other	0.0%	0
answered question		52
skipped question		0

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.		
	Response Percent	Response Count
Yes <input type="text"/>	63.5%	33
No <input type="text"/>	36.5%	19
answered question		52
skipped question		0

How would you rate the overall quality and content of the plan.

	Response Percent	Response Count
1 - Poor	0.0%	0
2	0.0%	0
3 - Average	34.5%	10
4	55.2%	16
5 - Excellent	17.2%	5
<i>answered question</i>		29
<i>skipped question</i>		23

Do you feel the plan accurately portrays natural and man-made hazards in Montana?


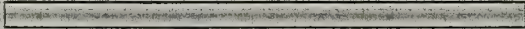
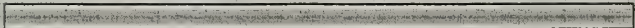
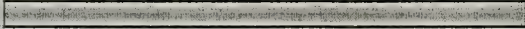
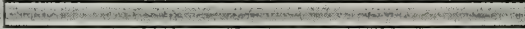

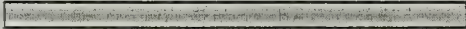
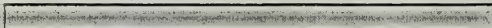
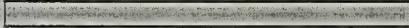


	Response Percent	Response Count
Yes	100.0%	29
No	6.9%	2
<i>answered question</i>		29
<i>skipped question</i>		23

What improvements do you think could be made to the plan?

	Response Count
	9
<i>answered question</i>	9
<i>skipped question</i>	43

From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction. High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	15.4% (6)	35.9% (14)	48.7% (19)	2.33	39
Drought	48.7% (19)	38.5% (15)	12.8% (5)	1.64	39
Earthquake	78.9% (30)	21.1% (8)	0.0% (0)	1.21	38
Flooding/Dam Failure	38.5% (15)	46.2% (18)	15.4% (6)	1.77	39
Hazardous Material Incidents	35.9% (14)	51.3% (20)	12.8% (5)	1.77	39
Landslide	2.6% (1)	33.3% (13)	64.1% (25)	2.62	39
Terrorism/Violence	10.8% (4)	24.3% (9)	64.9% (24)	2.54	37
Thunderstorm Wind, Hail, and Tornadoes	46.2% (18)	48.7% (19)	5.1% (2)	1.59	39
Volcanic Eruption	0.0% (0)	18.4% (7)	81.6% (31)	2.82	38
Wildfire	89.7% (35)	7.7% (3)	2.6% (1)	1.13	39
Winter Storms/Avalanche	36.8% (14)	55.3% (21)	7.9% (3)	1.71	38
<i>answered question</i>					39
<i>skipped question</i>					13

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.			Response Percent	Response Count
Communicable Disease			75.0%	18
Drought			75.0%	18
Earthquake			91.7%	22
Flooding/Dam Failure			75.0%	18
Hazardous Material Incidents			75.0%	18
Landslide			58.3%	14
Terrorism/Violence			66.7%	16
Thunderstorm Wind, Hail, and Tornadoes			70.8%	17
Volcanic Eruption			58.3%	14
Wildfire			91.7%	22
Winter Storms/Avalanche			62.5%	15
<i>answered question</i>				24
<i>skipped question</i>				28

Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=highest / 10=lowest):

	High				Medium				Low		Rating Average
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	43.8% (14)	18.8% (6)	12.5% (4)	12.5% (4)	6.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	6.3% (2)	0.0% (0)	2.56
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	37.5% (12)	25.0% (8)	18.8% (6)	6.3% (2)	6.3% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.1% (1)	3.1% (1)	2.59
Reduce the Community Impacts of Wildland and Rangeland Fires	56.3% (18)	18.8% (6)	21.9% (7)	0.0% (0)	3.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.75
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	25.0% (8)	6.3% (2)	21.9% (7)	12.5% (4)	15.6% (5)	12.5% (4)	0.0% (0)	3.1% (1)	3.1% (1)	0.0% (0)	3.59
Minimize Economic Impacts of Drought	15.6% (5)	9.4% (3)	21.9% (7)	6.3% (2)	28.1% (9)	0.0% (0)	9.4% (3)	6.3% (2)	3.1% (1)	0.0% (0)	4.09
Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)	9.4% (3)	3.1% (1)	18.8% (6)	6.3% (2)	34.4% (11)	3.1% (1)	12.5% (4)	6.3% (2)	6.3% (2)	0.0% (0)	4.81
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	9.4% (3)	6.3% (2)	25.0% (8)	12.5% (4)	28.1% (9)	3.1% (1)	6.3% (2)	3.1% (1)	3.1% (1)	3.1% (1)	4.34
Reduce Potential Earthquake Losses in Western Montana	31.3% (10)	25.0% (8)	25.0% (8)	6.3% (2)	12.5% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.44
Reduce Losses from Hazardous Material Incidents	9.4% (3)	25.0% (8)	12.5% (4)	21.9% (7)	15.6% (5)	6.3% (2)	0.0% (0)	0.0% (0)	6.3% (2)	3.1% (1)	3.88
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	6.3% (2)	6.3% (2)	21.9% (7)	9.4% (3)	37.5% (12)	0.0% (0)	3.1% (1)	3.1% (1)	3.1% (1)	9.4% (3)	4.78

answered question

skipped question

Please indicate any additional Goals you think should be added to the State Plan.

Response Count

6

answered question

6

skipped question

46

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.

	High				Medium				Low		Rating Average
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	31.0% (9)	24.1% (7)	20.7% (6)	6.9% (2)	3.4% (1)	0.0% (0)	6.9% (2)	3.4% (1)	3.4% (1)	0.0% (0)	2.93
Conduct Level 1 HAZUS-MH analyses for all Montana counties	13.8% (4)	17.2% (5)	27.6% (8)	10.3% (3)	24.1% (7)	0.0% (0)	6.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.41
Improve Statewide HAZUS data	13.8% (4)	24.1% (7)	31.0% (9)	3.4% (1)	20.7% (6)	6.9% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.14
Determine GPS locations of all State buildings for detailed, non-public analysis	14.3% (4)	14.3% (4)	21.4% (6)	7.1% (2)	28.6% (8)	0.0% (0)	7.1% (2)	3.6% (1)	3.6% (1)	0.0% (0)	3.89
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	13.8% (4)	10.3% (3)	10.3% (3)	13.8% (4)	24.1% (7)	17.2% (5)	0.0% (0)	3.4% (1)	3.4% (1)	3.4% (1)	4.38
Promote earth science education of hazards in schools	10.7% (3)	10.7% (3)	25.0% (7)	25.0% (7)	17.9% (5)	0.0% (0)	3.6% (1)	0.0% (0)	0.0% (0)	7.1% (2)	3.93
Conduct a Statewide warning capability assessment	27.6% (8)	20.7% (6)	27.6% (8)	6.9% (2)	13.8% (4)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.69
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	34.5% (10)	17.2% (5)	31.0% (9)	3.4% (1)	10.3% (3)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.48
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	10.3% (3)	34.5% (10)	31.0% (9)	13.8% (4)	10.3% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.79
Increase the public awareness of hazards	28.6% (8)	28.6% (8)	25.0% (7)	10.7% (3)	3.6% (1)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.43
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	37.9% (11)	20.7% (6)	10.3% (3)	10.3% (3)	17.2% (5)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.59
Increase readiness for the protection of life and property during an event	48.3% (14)	17.2% (5)	10.3% (3)	17.2% (5)	3.4% (1)	3.4% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.21

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

7

answered question

7

skipped question

45

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High				Medium				Low		Rating Average
Continue outreach of mitigation project funding opportunities	35.7% (10)	17.9% (5)	17.9% (5)	14.3% (4)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)	2.68
Provide technical assistance with the environmental review process	17.9% (5)	21.4% (6)	17.9% (5)	21.4% (6)	17.9% (5)	0.0% (0)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)	3.21
Provide technical assistance for project development	21.4% (6)	17.9% (5)	17.9% (5)	21.4% (6)	21.4% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.04
Create an electronic database of completed mitigation projects in Montana	17.9% (5)	14.3% (4)	21.4% (6)	7.1% (2)	21.4% (6)	10.7% (3)	0.0% (0)	0.0% (0)	3.6% (1)	3.6% (1)	3.79
Increase the scope and participation of the State Hazard Mitigation Team	18.5% (5)	14.8% (4)	14.8% (4)	14.8% (4)	18.5% (5)	7.4% (2)	3.7% (1)	0.0% (0)	7.4% (2)	0.0% (0)	3.81
Create a private advisory group for mitigation	14.3% (4)	14.3% (4)	21.4% (6)	3.6% (1)	14.3% (4)	7.1% (2)	7.1% (2)	7.1% (2)	3.6% (1)	7.1% (2)	4.46
Streamline mitigation standards in state and/or local subdivision regulations	29.6% (8)	11.1% (3)	14.8% (4)	11.1% (3)	18.5% (5)	7.4% (2)	3.7% (1)	0.0% (0)	3.7% (1)	0.0% (0)	3.37
Strengthen state and/or local building codes	35.7% (10)	28.6% (8)	10.7% (3)	7.1% (2)	7.1% (2)	0.0% (0)	0.0% (0)	7.1% (2)	3.6% (1)	0.0% (0)	2.79
Require growth policies consider natural and man-made hazard	46.4% (13)	25.0% (7)	14.3% (4)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	7.1% (2)	0.0% (0)	0.0% (0)	2.25
Create a state funded grant program to assist with the 25% match for local governments	50.0% (14)	10.7% (3)	10.7% (3)	7.1% (2)	7.1% (2)	3.6% (1)	3.6% (1)	0.0% (0)	7.1% (2)	0.0% (0)	2.79
Coordinate local plan development	25.0% (7)	28.6% (8)	10.7% (3)	14.3% (4)	14.3% (4)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.6% (1)	3.00
Provide technical assistance with											

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	32.1% (9)	17.9% (5)	28.6% (8)	10.7% (3)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)	2.64
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
										Response Count	
											4
answered question											4
skipped question											48

Goal: Mitigate the potential loss of life and property from flooding.											
	High				Medium					Low	Rating Average
Develop and improve upon model floodplain ordinances for local governments	32.1% (9)	17.9% (5)	17.9% (5)	14.3% (4)	17.9% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.68
Develop mapping for unmapped flood prone areas	28.6% (8)	28.6% (8)	17.9% (5)	10.7% (3)	3.6% (1)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.64
Update floodplain mapping of mapped areas	32.1% (9)	25.0% (7)	17.9% (5)	10.7% (3)	7.1% (2)	3.6% (1)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)	2.68
Establish a schedule for NFIP map reviews and updates	32.1% (9)	10.7% (3)	25.0% (7)	10.7% (3)	14.3% (4)	3.6% (1)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.89
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	15.4% (4)	15.4% (4)	34.6% (9)	11.5% (3)	19.2% (5)	0.0% (0)	0.0% (0)	3.8% (1)	0.0% (0)	0.0% (0)	3.23
Increase the public awareness of flood mitigation	35.7% (10)	28.6% (8)	14.3% (4)	21.4% (6)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.21
Reduce the number of current and future structures in the floodplain	44.4% (12)	22.2% (6)	25.9% (7)	3.7% (1)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.00
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	29.6% (8)	22.2% (6)	25.9% (7)	7.4% (2)	11.1% (3)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.63
Provide adequate warning of flooding events	46.4% (13)	28.6% (8)	10.7% (3)	10.7% (3)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.96

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

3

answered question

3

skipped question

49

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium					Low	Rating Average
Reduce fuels in the wildland urban interface	78.6% (22)	7.1% (2)	10.7% (3)	0.0% (0)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.43
Reduce hazardous fuels in rangeland areas	39.3% (11)	28.6% (8)	7.1% (2)	14.3% (4)	7.1% (2)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.32
Accurately assess and address the current wildland urban interface problems at the subdivision level	71.4% (20)	10.7% (3)	14.3% (4)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.57
Enhance firefighting resources and improve firefighting capabilities	51.9% (14)	14.8% (4)	25.9% (7)	7.4% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.89
Enhance community awareness of wildfires through education	53.6% (15)	17.9% (5)	14.3% (4)	7.1% (2)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.96
Enhance effectiveness of response and evacuation	46.4% (13)	17.9% (5)	17.9% (5)	10.7% (3)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.14
Establish mapping or record keeping practices to support fuel management strategies	46.4% (13)	7.1% (2)	21.4% (6)	10.7% (3)	14.3% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.39
Minimize human-caused ignition sources in fire-prone areas	55.6% (15)	22.2% (6)	14.8% (4)	7.4% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.74
Centralize fire history documentation	29.6% (8)	7.4% (2)	22.2% (6)	14.8% (4)	18.5% (5)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.7% (1)	3.22
Develop a consistent Statewide fire risk assessment system	35.7% (10)	28.6% (8)	14.3% (4)	14.3% (4)	3.6% (1)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.32
Encourage sustainable growth in wildland fire hazard areas	32.1% (9)	17.9% (5)	14.3% (4)	10.7% (3)	7.1% (2)	3.6% (1)	0.0% (0)	3.6% (1)	0.0% (0)	10.7% (3)	3.46

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

6

answered question

6

skipped question

46

Goal: Reduce potential earthquake losses in Western Montana.

	High				Medium				Low		Rating Average	R
Goal: Reduce potential earthquake losses in Western Montana.	37.0% (10)	29.6% (8)	18.5% (5)	11.1% (3)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.15	
Provide greater enforcement of current building codes	53.6% (15)	10.7% (3)	21.4% (6)	3.6% (1)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.07	
Develop model seismic building codes	32.1% (9)	21.4% (6)	32.1% (9)	3.6% (1)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.39	
Create stronger building standards for critical facilities and structures housing vulnerable populations	59.3% (16)	18.5% (5)	18.5% (5)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.70	
Require earthquake drills in schools in Western Montana	42.9% (12)	10.7% (3)	25.0% (7)	10.7% (3)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.36	
Expand and upgrade earthquake monitoring network and reporting capabilities	28.6% (8)	17.9% (5)	28.6% (8)	17.9% (5)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.57	
Continue "Earthquake Preparedness Month" outreach activities during the month of October	39.3% (11)	17.9% (5)	17.9% (5)	10.7% (3)	10.7% (3)	0.0% (0)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.50	
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	28.6% (8)	21.4% (6)	21.4% (6)	17.9% (5)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)	2.75	
Seismically retrofit existing critical facilities and government assets	39.3% (11)	25.0% (7)	17.9% (5)	10.7% (3)	3.6% (1)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.25	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

5

answered question

5

skipped question

47

Goal: Minimize economic impacts of drought.

	High				Medium				Low		Rating Average	R
Develop a system for distributing information on current conditions	18.5% (5)	18.5% (5)	14.8% (4)	11.1% (3)	33.3% (9)	0.0% (0)	0.0% (0)	0.0% (0)	3.7% (1)	0.0% (0)	3.44	
Continue to support the State Drought Advisory Committee	22.2% (6)	18.5% (5)	14.8% (4)	11.1% (3)	22.2% (6)	7.4% (2)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.30	
Install Statewide drought monitoring stations	22.2% (6)	11.1% (3)	18.5% (5)	7.4% (2)	33.3% (9)	7.4% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.41	
Use long-term groundwater monitoring to assess drought conditions	18.5% (5)	14.8% (4)	29.6% (8)	14.8% (4)	18.5% (5)	0.0% (0)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.15	
Educate farmers and ranchers in fiscally preventing drought losses	29.6% (8)	33.3% (9)	14.8% (4)	7.4% (2)	7.4% (2)	3.7% (1)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.56	
Educate farmers and ranchers in reducing physical losses during dry seasons	25.9% (7)	33.3% (9)	18.5% (5)	3.7% (1)	11.1% (3)	3.7% (1)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.67	
Identify water retention projects that could lessen the effects of drought	33.3% (9)	33.3% (9)	18.5% (5)	11.1% (3)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.19	
answered question												
skipped question												

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											Response Count
											3
<i>answered question</i>											3
<i>skipped question</i>											49

Goal: Reduce impacts from severe winter weather.												Rating Average	R
	High				Medium				Low				
Distribute winter driving and survival tips	32.1% (9)	14.3% (4)	25.0% (7)	3.6% (1)	14.3% (4)	7.1% (2)	0.0% (0)	3.6% (1)	0.0% (0)	0.0% (0)		2.93	
Increase public awareness of winter weather hazards	35.7% (10)	14.3% (4)	25.0% (7)	3.6% (1)	10.7% (3)	7.1% (2)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)		2.75	
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	14.3% (4)	17.9% (5)	28.6% (8)	10.7% (3)	28.6% (8)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)		3.21	
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	32.1% (9)	28.6% (8)	25.0% (7)	7.1% (2)	7.1% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)		2.29	
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	17.9% (5)	28.6% (8)	17.9% (5)	10.7% (3)	21.4% (6)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)		3.00	
<i>answered question</i>													
<i>skipped question</i>													

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											Response Count
											4
<i>answered question</i>											4
<i>skipped question</i>											48

Goal: Reduce impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)

	High				Medium				Low				Rating Average
Install safety film on critical facilities to prevent shattering glass.	17.9% (5)	3.6% (1)	25.0% (7)	14.3% (4)	25.0% (7)	10.7% (3)	0.0% (0)	0.0% (0)	3.6% (1)	0.0% (0)			3.79
Encourage development and enforcement of wind resistant buildings and construction codes	14.3% (4)	17.9% (5)	25.0% (7)	7.1% (2)	25.0% (7)	7.1% (2)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)			3.46
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	15.4% (4)	19.2% (5)	23.1% (6)	11.5% (3)	26.9% (7)	3.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)			3.27
<i>answered question</i>													
<i>skipped question</i>													

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	2
<i>answered question</i>	2
<i>skipped question</i>	50

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Reduce losses from Hazardous Material Incidents											
	High				Medium					Low	Rating Average
Develop communication plan for hazardous material emergencies	44.4% (12)	22.2% (6)	14.8% (4)	3.7% (1)	11.1% (3)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.26
Enhance information capability on types of hazardous materials traveling transportation routes	35.7% (10)	28.6% (8)	14.3% (4)	3.6% (1)	17.9% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.39
Provide hazardous material training to emergency responders	53.6% (15)	17.9% (5)	7.1% (2)	10.7% (3)	10.7% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.07
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	42.9% (12)	21.4% (6)	14.3% (4)	17.9% (5)	3.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.18
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.		Response Count
		2
answered question		2
skipped question		50

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High	Medium								Low	Rating Average
Identify and map areas of greatest landslide and avalanche potential	18.5% (5)	11.1% (3)	11.1% (3)	14.8% (4)	25.9% (7)	11.1% (3)	0.0% (0)	3.7% (1)	0.0% (0)	3.7% (1)	3.96
Create a landslide/avalanche technical committee	3.7% (1)	11.1% (3)	11.1% (3)	22.2% (6)	14.8% (4)	14.8% (4)	11.1% (3)	7.4% (2)	0.0% (0)	3.7% (1)	4.85
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	14.8% (4)	11.1% (3)	18.5% (5)	11.1% (3)	18.5% (5)	18.5% (5)	7.4% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.93
Reduce losses from communicable disease	29.6% (8)	14.8% (4)	33.3% (9)	7.4% (2)	3.7% (1)	7.4% (2)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.78
Increase awareness of risks from communicable disease	29.6% (8)	22.2% (6)	25.9% (7)	7.4% (2)	3.7% (1)	7.4% (2)	3.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.70
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	1
answered question	1
skipped question	51

Please indicate how long it took you to complete the survey.		
	Response Percent	Response Count
5 minutes <input type="checkbox"/>	3.7%	1
10 minutes <input type="checkbox"/>	22.2%	6
15 minutes <input type="checkbox"/>	37.0%	10
20 minutes <input type="checkbox"/>	25.9%	7
30 minutes <input type="checkbox"/>	7.4%	2
Greater than 30 minutes <input type="checkbox"/>	3.7%	1
answered question		27
skipped question		25

District 3 On-Line Survey - Other Jurisdictions Completing Plan

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

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Comment Text		Response Date
 Find	1. Red Cross	Wed, 6/6/07 7:28 PM
 Find	2. City of Helena	Wed, 6/6/07 2:40 PM
 Find	3. Private Higher Education	Wed, 6/6/07 7:29 AM
 Find	4. City	Wed, 6/6/07 7:20 AM
 Find	5. USFS and CERT	Wed, 6/6/07 6:01 AM
 Find	6. city	Tue, 6/5/07 12:47 PM
 Find	7. test	Tue, 6/5/07 9:21 AM
 Find	8. Human Services	Fri, 5/25/07 12:38 PM
 Find	9. City of Helena	Fri, 5/25/07 11:27 AM
 Find	10. Airport Authority	Fri, 5/25/07 8:59 AM
 Find	11. Media	Thu, 5/24/07 3:19 PM
 Find	12. American Red Cross-volunteer	Thu, 5/24/07 1:31 PM
25 responses per page		

District 3 On-Line Survey - Suggested Improvements to State Plan

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



Displaying 1 - 10 of 10 responses

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Comment Text		Response Date
 Find	1. Better priority setting based on risks involved	Tue, 7/3/07 4:05 PM
 Find	2. Maybe change some of the rankings	Wed, 6/6/07 2:40 PM
 Find	3. A section that would be mitigation project oriented....."what, as a State, we are going to do to address the risk from the hazards". Local govt's are required to do that. It is obvious that the State, as a land manager for example needs to be addressing the wildland fuel hazard. The Fish, Wildlife & Parks definitely needs to get into the mitigation game in their parks, day use facilities, etc. Even the MDOT has areas that can use some fuel hazard reduction. They also can reference a commitment to mitigation of the hazards that are identified by providing funding to address those hazards.	Tue, 6/5/07 1:54 PM
 Find	4. none	Tue, 6/5/07 9:35 AM
 Find	5. test	Tue, 6/5/07 9:21 AM
 Find	6. none	Tue, 6/5/07 8:36 AM
 Find	7. none	Tue, 6/5/07 8:26 AM
 Find	8. Simplify it. It's too many volumes to be useful right now.	Wed, 5/30/07 10:29 AM
 Find	9. More thorough and knowledgeable focus on impacts to food safety and supply issues.	Thu, 5/24/07 1:28 PM
 Find	10. The update that is possible only because all of the counties and tribes have finally completed or nearly completed their local plans.	Thu, 5/24/07 8:07 AM
		10 responses per page

District 3 On-Line Survey - Suggested New Goals

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Comment Text		Response Date
 Find	1. Increase citizen preparedness for all hazards.	Thu, 6/21/07 9:25 PM
 Find	2. None at this time	Wed, 6/6/07 2:45 PM
 Find	3. Maintain up-to-date seismic codes and the general understanding of those codes on the part of engineering professionals and construction review personnel so that construction projects are conducted safely but are affordable. Reverse the tendency to "overdo" seismic protection installations by studying more advanced techniques as practiced in high seismic risk urban areas.	Wed, 6/6/07 7:37 AM
 Find	4. Improve public safety communications interoperability at the local level, including local infrastructure and subscriber units.	Tue, 6/5/07 1:44 PM
 Find	5. Asses and define the true (vs theoretical) ability of FEMA to assist during an emergency. I.E. is FEMA actually a disaster within a disaster.	Tue, 5/29/07 9:40 AM
 Find	6. Have a basic plan to deal with media inquiries and building relationships with the media.	Thu, 5/24/07 3:56 PM
10 responses per page		

District 3 On-Line Survey - Other Goal 1 Mitigation Projects

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






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Comment Text		Response Date
 Find	1. Continue funding for mitigation projects (fuel reduction/survivable space/defensible space) in the wildland/urban interface.	Tue, 7/3/07 4:39 PM
 Find	2. Educate ALL public school students in preparedness activities.	Thu, 6/21/07 9:32 PM
 Find	3. convince the Legislature to fund all this.	Thu, 6/7/07 1:30 PM
 Find	4. Wildfire fuels mitigation and planning/funding.	Thu, 6/7/07 5:30 AM
 Find	5. Include economic and social values in inventories of structures and areas considered for hazard mitigation planning. Values to include tourism value, heritage value, scenic value, etc.	Wed, 6/6/07 7:43 AM
 Find	6. In the first question above.....please don't just make it a duplicative system to what is already out there. Many of the counties already are strapped with financing a GIS system of their own, when there seems to be NRIS systems out there that are duplicating what is already available locally. Or, finance it as a state system that the counties tap into. No sense in the taxpayers paying for it twice.	Tue, 6/5/07 2:11 PM
 Find	7. There is only so much that can be done for people when they are not willing to help themselves. Most rural people are prepared and take care of each other anyway.	Thu, 5/24/07 8:21 AM

10 responses per page

District 3 On-Line Survey - Other Goal 2 Mitigation Projects

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

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Comment Text		Response Date
 Find	1. Private advisory group should be made up of citizens concerned with mitigation needs. Strengthen and enforce mitigation standards in state and/or local subdivision regulations	Thu, 6/21/07 9:32 PM
 Find	2. None at this time.	Thu, 6/7/07 1:30 PM
 Find	3. I am not sure what "streamline mitigation standards in state and/or local subdivision regulations" means in the question above. Streamlining can lead to weakening and a door opened can lead to the horse getting away for good. There definitely needs to be a strengthening.	Tue, 6/5/07 2:11 PM
 Find	4. Is there a State Hazard Mitigation Team?	Thu, 5/24/07 8:21 AM
10 responses per page		

District 3 On-Line Survey - Other Drought Mitigation Projects

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Comment Text		Response Date
 Find	1. Quantify the effects of drought on wildfire potential.	Tue, 7/3/07 5:53 PM
 Find	2. none at this time	Thu, 6/7/07 1:40 PM
 Find	3. I think most of this section is pretty well covered with existing program. Telling farmers and ranchers anything is like preaching to the choir. I don't know any who don't do what they can now. Water retention education needs to start with the Army Corp of Engineers and their continuous draw down of the Missouri and Fort Peck reserviors	Thu, 5/24/07 8:30 AM
		10 responses per page

District 3 On-Line Survey - Other Earthquake Mitigation Projects

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

Displaying 1 - 5 of 5 responses

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Comment Text		Response Date
 Find	1. Educate public on their responsibility for preparedness for earthquake.	Thu, 6/21/07 9:37 PM
 Find	2. none at this time.	Thu, 6/7/07 1:38 PM
 Find	3. Constantly review and incorporate the most advanced seismic techniques into codes and practices. Constantly update professionals responsible for seismic protection design and construction on those techniques.	Wed, 6/6/07 7:48 AM
 Find	4. Provided for adequate local infrastructure to provide critical services post quake that are sufficient to support survivors for 2 weeks after a major quake.	Thu, 5/24/07 1:39 PM
 Find	5. be careful with building codes. make sure they are friendly to historic building preservation. too many times historic buildings are deemed unsafe or not usable because of the theory that they have to be retrofitted to be like new buildings.	Wed, 5/23/07 4:03 PM
10 responses per page		

District 3 On-Line Survey - Other Flood Mitigation Projects

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Displaying 1 - 3 of 3 responses

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Comment Text		Response Date
 Find	1. Increase the public awareness of their responsibility during times of flooding.	Thu, 6/21/07 9:37 PM
 Find	2. none at this time	Thu, 6/7/07 1:38 PM
 Find	3. People who build in flood plains need to take care of their own mitigation problems	Thu, 5/24/07 8:25 AM
		10 responses per page

District 3 On-Line Survey - Other Hazardous Material Mitigation Projects

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Displaying 1 - 2 of 2 responses

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Comment Text		Response Date
 Find	1. Increase public awareness of shelter-in-place procedures for homes near transportation networks that commonly carry hazardous materials.	Thu, 6/21/07 9:44 PM
 Find	2. Where a shelter will be set up and to have people even though they may not be staying there, to check in so concern family members or friends know that they are ok.	Wed, 6/6/07 7:44 PM
		10 responses per page

District 3 On-Line Survey - Other Mitigation Projects for Less Frequent Hazards

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Displaying 1 - 1 of 1 responses

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Comment Text		Response Date
 Find	1. Increase public awareness of preparedness responsibilities regarding communicable diseases.	Thu, 6/21/07 9:44 PM
		10 responses per page 

District 3 On-Line Survey - Other Wildfire Mitigation Projects

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

Displaying 1 - 6 of 6 responses

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Comment Text		Response Date
 Find	1. Support and fund a state-wide FIRESAFE/FIREWISE ORGANIZATION that can gather, disseminate, and assist counties and other political subdivisions with grant information, project development and operations.	Tue, 7/3/07 5:44 PM
 Find	2. Emphasize public responsibility for defensible space in the wildland urban interface.	Thu, 6/21/07 9:37 PM
 Find	3. none at this time	Thu, 6/7/07 1:38 PM
 Find	4. Mitigation efforts must be stepped up on Federal lands adjacent to private/state.	Thu, 6/7/07 5:33 AM
 Find	5. 2 comments on this section.....mitigation is not about increasing the "response stuff". If mitigation is being done the "response" dollar should be less. If we were allowed the \$1.2 Billion that was spent on fire suppression last year for mitigation work, you shouldn't need the expense of high priced response. (2) I don't know that we need to be "encouraging" sustainable growth, but certainly it is happening without it. What we need to insist on where that growth is occurring is the highest mitigation standards in order for the growth to continue. It is of course hard to rate any of the questions above at anything less than a high rating. Who can be against all that good "enhancing".	Tue, 6/5/07 2:19 PM
 Find	6. Education should help mitigate human caused ignition but I don't know how you can "project" this topic	Thu, 5/24/07 8:25 AM
		10 responses per page

District 3 On-Line Survey - Other Severe Summer Weather Mitigation Projects

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Displaying 1 - 2 of 2 responses

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Comment Text		Response Date
 Find	1. Encourage all developments to bury electric lines that could blow down and start fires.	Tue, 7/3/07 5:53 PM
 Find	2. Educate public on native tree species which are more wind resistant.	Thu, 6/21/07 9:44 PM
10 responses per page		

District 3 On-Line Survey - Other Severe Summer Storm Mitigation Projects

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Displaying 1 - 4 of 4 responses

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Comment Text		Response Date
 Find	1. Increase public awareness of their responsibility to be prepared for severe winter storms.	Thu, 6/21/07 9:44 PM
 Find	2. Structurally analyze local emergency services facilities and assist and strengthen as necessary or assist with all new constructions.	Thu, 6/7/07 5:37 AM
 Find	3. Being born and growing up in Montana, I'm probably not the best person to answer this question. It is common sense, but with all the people moving here from out of state it may be of great importance.	Wed, 6/6/07 7:44 PM
 Find	4. The new interoperable communications sytem that is being worked on includes emergency response personnel and road departments. Getting it done is a matter of finances	Thu, 5/24/07 8:30 AM
10 responses per page		

District 3 On-Line Survey-Impact of Future Development on Communicable Disease Hazard

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













Displaying 1 - 18 of 18 responses

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Comment Text	Response Date
 Find 1. Will increase as population increases.	Tue, 7/3/07 4:30 PM
 Find 2. Will increase the hazard	Thu, 6/21/07 9:23 PM
 Find 3. Increase as population in county and city of Helena increases, Whooping Cough outbreak would be an example	Tue, 6/19/07 3:40 PM
 Find 4. More people more victims	Wed, 6/6/07 2:44 PM
 Find 5. more people, more hazard	Wed, 6/6/07 7:24 AM
 Find 6. increase the risks	Tue, 6/5/07 2:17 PM
 Find 7. More folks.....more chances for disease spread	Tue, 6/5/07 2:01 PM
 Find 8. Mushrooming development can only increase this risk.	Tue, 6/5/07 1:44 PM
 Find 9. More people = greater possibility	Tue, 6/5/07 1:09 PM
 Find 10. None	Fri, 5/25/07 11:31 AM
 Find 11. infrastructure support	Fri, 5/25/07 9:17 AM
 Find 12. More people travelling in	Fri, 5/25/07 9:01 AM
 Find 13. Impact on Staff and viewers who watch news	Thu, 5/24/07 3:32 PM
 Find 14. M	Thu, 5/24/07 12:29 PM
 Find 15. The county is growing so it could be higher	Thu, 5/24/07 8:13 AM
 Find 16. Higher incidence due to increse # of residents	Wed, 5/23/07 4:01 PM
 Find 17. depends on severity (mortality rate) of infectious disease	Wed, 5/23/07 3:12 PM
 Find 18. Surveillance will have to be maintained at a heightened level, with immunization rates high	Wed, 5/23/07 2:31 PM
50 responses per page	

District 3 On-Line Survey-Impact of Future Development on Drought Hazard

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












Displaying 1 - 18 of 18 responses

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	Comment Text	Response Date
 Find	1. Homes built in the WUI will be at a higher risk (from fire) as will agriculture.	Tue, 7/3/07 4:30 PM
 Find	2. Will not affect	Thu, 6/21/07 9:23 PM
 Find	3. Risk increases as global warming changes climates and snowfall decreases	Tue, 6/19/07 3:40 PM
 Find	4. Water and power shortages	Wed, 6/6/07 2:44 PM
 Find	5. less agricultural impacts will result as ag declines	Wed, 6/6/07 7:24 AM
 Find	6. n/a	Tue, 6/5/07 2:17 PM
 Find	7. Seems to be getting drier every year	Tue, 6/5/07 2:01 PM
 Find	8. More users + less available water=greater hazard	Tue, 6/5/07 1:44 PM
 Find	9. not much	Tue, 6/5/07 1:09 PM
 Find	10. None	Fri, 5/25/07 11:31 AM
 Find	11. agriculture, drinking water supply	Fri, 5/25/07 9:17 AM
 Find	12. Too many new wells in an already stressed water table	Fri, 5/25/07 8:09 AM
 Find	13. Impacts the types of stories we cover and how we cover them	Thu, 5/24/07 3:32 PM
 Find	14. M	Thu, 5/24/07 12:29 PM
 Find	15. more subdivisions mean fewer crop/pasture land but more water users	Thu, 5/24/07 8:13 AM
 Find	16. some impact due to increased water use	Wed, 5/23/07 4:01 PM
 Find	17. where will water come from for new subdivisions and at what cost	Wed, 5/23/07 3:12 PM
 Find	18. Concern for water conservation	Wed, 5/23/07 2:31 PM
		50 responses per page

District 3 On-Line Survey-Impact of Future Development on Earthquake Hazard

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Comment Text		Response Date
 Find	1. More loss of life and property damage.	Tue, 7/3/07 4:30 PM
 Find	2. Will increase the vulnerable population	Thu, 6/21/07 9:23 PM
 Find	3. Additional population increases increase number of injured and response time if severe event occurs	Tue, 6/19/07 3:40 PM
 Find	4. More chance for impact from smaller quakes	Wed, 6/6/07 2:44 PM
 Find	5. Keeping in mind building construction and possible emergency housing capabilities.	Wed, 6/6/07 7:33 AM
 Find	6. more damage will result as development expands	Wed, 6/6/07 7:24 AM
 Find	7. increase the impact	Tue, 6/5/07 2:17 PM
 Find	8. development will only add to the size of the destruction	Tue, 6/5/07 2:01 PM
 Find	9. Development in hazard prone areas obviously exacerbates the current problem	Tue, 6/5/07 1:44 PM
 Find	10. no additional impact	Tue, 6/5/07 1:09 PM
		10 responses per page

District 3 On-Line Survey-Impact of Future Development on Flooding Hazard

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















Displaying 1 - 18 of 18 responses

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Comment Text	Response Date
 Find 1. Should be low if restrictions on building in the flood plain are enforced.	Tue, 7/3/07 4:30 PM
 Find 2. Will increase the vulnerable population	Thu, 6/21/07 9:23 PM
 Find 3. Growth in valley flood plain increases costs and number of people affected, dam failure would not concern Helena but downstream such as Wolf Creek would be affected	Tue, 6/19/07 3:40 PM
 Find 4. little impact to city limits, major concern for down stream	Wed, 6/6/07 2:44 PM
 Find 5. more damage will result as development expands	Wed, 6/6/07 7:24 AM
 Find 6. increase the impact	Tue, 6/5/07 2:17 PM
 Find 7. Flooding most common.....development out of the flood plain handles this one	Tue, 6/5/07 2:01 PM
 Find 8. See comment for earthquake	Tue, 6/5/07 1:44 PM
 Find 9. more people building in the flood plain	Tue, 6/5/07 1:09 PM
 Find 10. This could have a major impact in the Helena Valley	Fri, 5/25/07 11:31 AM
 Find 11. More damage, possible loss of life	Fri, 5/25/07 8:09 AM
 Find 12. We would broadcast the flooding areas, what roads are closed/open how people can protect property and evacuations	Thu, 5/24/07 3:32 PM
 Find 13. Same comment as earthquakes.	Thu, 5/24/07 2:27 PM
 Find 14. H	Thu, 5/24/07 12:29 PM
 Find 15. shouldn't change much	Thu, 5/24/07 8:13 AM
 Find 16. great impact	Wed, 5/23/07 4:01 PM
 Find 17. cyclical	Wed, 5/23/07 3:12 PM
 Find 18. continued evaluation of the dams on the Missouri	Wed, 5/23/07 2:31 PM
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District 3 On-Line Survey-Impact of Future Development on Hazardous Material Incidents

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














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Comment Text		Response Date
 Find	1. Will increase as population increases.	Tue, 7/3/07 4:30 PM
 Find	2. Will increase the vulnerable population	Thu, 6/21/07 9:23 PM
 Find	3. number of injured and response time if severe event occurs	Tue, 6/19/07 3:40 PM
 Find	4. increase risk	Thu, 6/7/07 5:26 AM
 Find	5. Additional chances for accidents	Wed, 6/6/07 2:44 PM
 Find	6. more damage will result as development/economic activity expands	Wed, 6/6/07 7:24 AM
 Find	7. increase the impact	Tue, 6/5/07 2:17 PM
 Find	8. Again, more stuff moving and being stored means more chance for problems.	Tue, 6/5/07 2:01 PM
 Find	9. Interstate transport through increasingly urbanized areas without attendant increase in mitigation and response capability.	Tue, 6/5/07 1:44 PM
 Find	10. not much	Tue, 6/5/07 1:09 PM
 Find	11. Future development would have a low impact	Fri, 5/25/07 11:31 AM
 Find	12. More disruption as our rail lines go right thru the center of town	Fri, 5/25/07 8:09 AM
 Find	13. Would report road/RR Track closures and if any plumes are headed toward residential areas and what the public should do.	Thu, 5/24/07 3:32 PM
 Find	14. M	Thu, 5/24/07 12:29 PM
 Find	15. our risk is 2 interstate highways	Thu, 5/24/07 8:13 AM
 Find	16. great impact	Wed, 5/23/07 4:01 PM
 Find	17. rare but do occur	Wed, 5/23/07 3:12 PM
 Find	18. Evaluation of policies regarding handling, storage and transporting hazardous material	Wed, 5/23/07 2:31 PM
		50 responses per page

District 3 On-Line Survey-Impact of Future Development on Landslide Hazard

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













Displaying 1 - 14 of 14 responses

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Comment Text	Response Date
 Find 1. Shouldn't be much impact particularly if subdivision reg's are enforced for no building on slopes over 30%.	Tue, 7/3/07 4:30 PM
 Find 2. n/a	Thu, 6/21/07 9:23 PM
 Find 3. Not really a concern	Tue, 6/19/07 3:40 PM
 Find 4. Only if Mount Helena lets go	Wed, 6/6/07 2:44 PM
 Find 5. more damage will result as development expands	Wed, 6/6/07 7:24 AM
 Find 6. n/a	Tue, 6/5/07 2:17 PM
 Find 7. If it is caused by development then sure.....otherwise not going to change	Tue, 6/5/07 2:01 PM
 Find 8. no additional impact	Tue, 6/5/07 1:09 PM
 Find 9. Low	Fri, 5/25/07 11:31 AM
 Find 10. Landslides are unlikely, but in the event of a landslide we would report on the damage and safety of the general area	Thu, 5/24/07 3:32 PM
 Find 11. L	Thu, 5/24/07 12:29 PM
 Find 12. would change if there are more fires	Thu, 5/24/07 8:13 AM
 Find 13. low impact	Wed, 5/23/07 4:01 PM
 Find 14. Evaluation and communication regarding landslides	Wed, 5/23/07 2:31 PM
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District 3 On-Line Survey-Impact of Future Development on Severe Summer Weather Hazard

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


Displaying 1 - 17 of 17 responses

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	Comment Text	Response Date
 Find	1. As development increases so will the chances for damage from these natural events.	Tue, 7/3/07 4:30 PM
 Find	2. n/a	Thu, 6/21/07 9:23 PM
 Find	3. number of injured and response time if severe event occurs	Tue, 6/19/07 3:40 PM
 Find	4. roads, traffic, power shortages	Wed, 6/6/07 2:44 PM
 Find	5. more damage will result as development expands	Wed, 6/6/07 7:24 AM
 Find	6. increase the impact	Tue, 6/5/07 2:17 PM
 Find	7. Weather is not impacted by more development.....again more development, more exposure, possibility for more damage.	Tue, 6/5/07 2:01 PM
 Find	8. no additional impact	Tue, 6/5/07 1:09 PM
 Find	9. Unknown	Fri, 5/25/07 11:31 AM
 Find	10. seasonal situation	Fri, 5/25/07 9:01 AM
 Find	11. More destruction	Fri, 5/25/07 8:09 AM
 Find	12. Warn the public of storms, how to stay safe in severe wx, and any evacuations if any.	Thu, 5/24/07 3:32 PM
 Find	13. M	Thu, 5/24/07 12:29 PM
 Find	14. more structures to be effected	Thu, 5/24/07 8:13 AM
 Find	15. some impact	Wed, 5/23/07 4:01 PM
 Find	16. Hail can do major damage (economic)	Wed, 5/23/07 3:12 PM
 Find	17. Continued monitoring of the weather to warn populations in the path of a storm	Wed, 5/23/07 2:31 PM
		25 responses per page

District 3 On-Line Survey-Impact of Future Development on Terrorism Hazard

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












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Comment Text		Response Date
 Find	1. I don't believe the terrorists are much interested in Montana.	Tue, 7/3/07 4:30 PM
 Find	2. Will increase the hazard	Thu, 6/21/07 9:23 PM
 Find	3. Not to much of a concern	Tue, 6/19/07 3:40 PM
 Find	4. Possible problems at the Capital and different anti government groups	Wed, 6/6/07 2:44 PM
 Find	5. I wonder about the Helena Civic Center as a target	Wed, 6/6/07 7:24 AM
 Find	6. n/a	Tue, 6/5/07 2:17 PM
 Find	7. society is getting more antsy on this one, more folks, more potential for violence.	Tue, 6/5/07 2:01 PM
 Find	8. While the direct risk of terrorist incident within the county is not high, this relatively rural area would represent a good staging area for such events. As a related matter, the incidence of violence can be expected to increase as numbers of visitors and residents continue to increase.	Tue, 6/5/07 1:44 PM
 Find	9. more people = less familiarity	Tue, 6/5/07 1:09 PM
 Find	10. Low	Fri, 5/25/07 11:31 AM
 Find	11. We would give the public whatever information we could release about the incident what they should do, how to talk to their kids and what safety precautions they should take.	Thu, 5/24/07 3:32 PM
 Find	12. L	Thu, 5/24/07 12:29 PM
 Find	13. probably not much change	Thu, 5/24/07 8:13 AM
 Find	14. low impact	Wed, 5/23/07 4:01 PM
 Find	15. probability increases daily	Wed, 5/23/07 3:12 PM
 Find	16. Little risk in MT	Wed, 5/23/07 2:31 PM
		25 responses per page

District 3 On-Line Survey-Impact of Future Development on Volcanic Eruption Hazard

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




Displaying 1 - 14 of 14 responses

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Comment Text		Response Date
 Find	1. The only impact I see from this event is ash fall-out from an eruption up wind.	Tue, 7/3/07 4:30 PM
 Find	2. n/a	Thu, 6/21/07 9:23 PM
 Find	3. Not really a concern	Tue, 6/19/07 3:40 PM
 Find	4. not much	Wed, 6/6/07 2:44 PM
 Find	5. not much chance here	Wed, 6/6/07 7:24 AM
 Find	6. increase the impact	Tue, 6/5/07 2:17 PM
 Find	7. no additional impact	Tue, 6/5/07 1:09 PM
 Find	8. Low	Fri, 5/25/07 11:31 AM
 Find	9. Report on air quality, damage assessments of local area if any, what impact it has on our community and evacuees of an area if any.	Thu, 5/24/07 3:32 PM
 Find	10. L	Thu, 5/24/07 12:29 PM
 Find	11. the volcanos in Jefferson County are inactive. Mt St Helens Continues to perform and the Yellowstone lake cauldron could wipe us all out	Thu, 5/24/07 8:13 AM
 Find	12. low impact	Wed, 5/23/07 4:01 PM
 Find	13. Like earthquake - if caldera goes	Wed, 5/23/07 3:12 PM
 Find	14. minimal risk	Wed, 5/23/07 2:31 PM
		25 responses per page

District 3 On-Line Survey-Impact of Future Development on Wildfire Hazard

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





















Displaying 1 - 22 of 22 responses

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Comment Text	Response Date
 Find 1. This is a critical hazard for our area. Uncontrolled development in the wildland/urban interface is at risk annually, particularly now with Global Warming. The impact, as with all the listed hazards, is the increased potential for loss of life and property damage.	Tue, 7/3/07 4:30 PM
 Find 2. Will increase the hazard	Thu, 6/21/07 9:23 PM
 Find 3. Global warming and increased building in forest areas increasing costs of wildfire suppression significantly	Tue, 6/19/07 3:40 PM
 Find 4. Increase risk	Thu, 6/7/07 5:26 AM
 Find 5. More chances for victims as growth moves up the into the hills	Wed, 6/6/07 2:44 PM
 Find 6. more damage will result as development expands	Wed, 6/6/07 7:24 AM
 Find 7. increase the impact	Tue, 6/5/07 2:17 PM
 Find 8. The biggy...more WUI.....more fires.....more chance for human starts.....more damage and loss.	Tue, 6/5/07 2:01 PM
 Find 9. Drought and an attendant long time between major fires result in a continuing acceleration of the risk/hazard level.	Tue, 6/5/07 1:44 PM
 Find 10. more people = more possibility of people started fires	Tue, 6/5/07 1:09 PM
 Find 11. Very High	Fri, 5/25/07 11:31 AM
 Find 12. more homes and people in wilderness	Fri, 5/25/07 9:01 AM
 Find 13. Regulations mitigating impact may be required	Fri, 5/25/07 8:19 AM
 Find 14. More destruction,possible loss of life	Fri, 5/25/07 8:09 AM
 Find 15. Evacuations of certain areas, how much the fire has burned or is contained. The wx conditions and their impact on the fire and which direction the fire is traveling.	Thu, 5/24/07 3:32 PM
 Find 16. Increased building in rural interface without required mitigation measures will only exacerbate current problems.	Thu, 5/24/07 2:27 PM
 Find 17. H	Thu, 5/24/07 12:29 PM
 Find 18. high	Thu, 5/24/07 8:13 AM
 Find 19. great impact	Wed, 5/23/07 4:01 PM
 Find 20. increase risk or cause	Wed, 5/23/07 3:43 PM
 Find 21. consider where/how we are building	Wed, 5/23/07 3:12 PM
 Find 22. Continued problems each summer. Need for public education.	Wed, 5/23/07 2:31 PM
25 responses per page	

District 3 On-Line Survey-Impact of Future Development on Severe Winter Weather Hazard

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








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Comment Text		Response Date
 Find	1. I don't believe that future development will have much impact on winter storms or avalanche threat in our area.	Tue, 7/3/07 4:30 PM
 Find	2. Will increase the vulnerable population	Thu, 6/21/07 9:23 PM
 Find	3. Less severe in last 10 years then previously, not as much of an issue	Tue, 6/19/07 3:40 PM
 Find	4. not much chance of this happening	Wed, 6/6/07 2:44 PM
 Find	5. more damage will result as development expands	Wed, 6/6/07 7:24 AM
 Find	6. increase the impact	Tue, 6/5/07 2:17 PM
 Find	7. I wish you had not combined these two.....but see the comments above on thunderstorms, etc.	Tue, 6/5/07 2:01 PM
 Find	8. no additional impact	Tue, 6/5/07 1:09 PM
 Find	9. Moderate	Fri, 5/25/07 11:31 AM
 Find	10. More accidents, loss of life	Fri, 5/25/07 8:09 AM
 Find	11. Warnings to the public, what to have on hand in case snowed in, how to survive an avalanche and how to spot avalanche conditions	Thu, 5/24/07 3:32 PM
 Find	12. M	Thu, 5/24/07 12:29 PM
 Find	13. more people not prepared to sit out power outages	Thu, 5/24/07 8:13 AM
 Find	14. some impact	Wed, 5/23/07 4:01 PM
 Find	15. Continued risk. Again need for public education	Wed, 5/23/07 2:31 PM
		25 responses per page

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Projects

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Beaverhead County

High Priority

- Upgrade the telephone system at the Emergency Operations Center to improve the multiple tasks of communication.
- Upgrade the dispatch console for the Emergency Operations Center and 911 backup with the equipment necessary to be Project 25 and digital compliant as required by new communications equipment.
- Install pigtails (electrical wiring) and 2-way switches at all Volunteer Fire Departments and Emergency Response Units for generator power supply to buildings.

Broadwater County

Medium Priority

- Promote street signs and numbers throughout the County, possibly in cooperation with 4-H.

Gallatin County

Medium Priority

- Install or designate back-up systems for critical infrastructure, including emergency communication systems.
- Identify, prioritize and harden infrastructure from damages during disasters.
- Install an uninterruptible power supplies on all Gallatin County Public Safety Communications Systems.
- Install generators at critical facilities and vulnerable population locations.
- Develop a sheltering plan specific to utility failure.

Park County

Medium Priority

- Develop a dispatch function mutual aid system with Gallatin Co.
- Install an uninterruptible power supply for Park Co. Dispatch.
- Develop a sheltering plan specific to utility failures.
- Install generators at critical facilities and vulnerable population locations.
- Install or designate back-up systems for critical infrastructure, including emergency communications systems.
- Identify, prioritize and harden infrastructure from damages during disasters.
- Protect North Repeater from vandals through bulletproof casing.
- Create a finite, hardened Emergency Operations Center and alternate location.

Sweet Grass County

High Priority

- Purchase a mobile command post trailer.
- Assess communication needs in the county.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Beaverhead County

High Priority

- Assist with the purchase of backup power system for the facility to enhance our warning and public information capabilities.

Gallatin County

Medium Priority

- Put NOAA weather radios transmitter in the West Yellowstone area and receivers in critical facilities and schools.
- Develop an Emergency Alert System plan.

Park County

Medium Priority

- Put NOAA Weather Radios in critical facilities and schools.
- Develop an Emergency Alert System plan.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Sweet Grass County

High Priority

- Improve the 911 system by implementing E911 in a timely manner.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Beaverhead County

High Priority

- Continue to encourage the thought process about how to mitigate risks and vulnerabilities to our communities.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Gallatin County

Medium Priority

- Develop GIS data that can be used with FEMA's HAZUS loss estimated models specifically the flood module.

Park County

Medium Priority

- Develop GIS data that can be used with FEMA's HAZUS loss estimated models.

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Gallatin County

Medium Priority

- Develop and maintain a Community Wildfire Protection Plan.

Park County

Medium Priority

- Develop and maintain a Community Wildfire Protection Plan.

Sweet Grass County

High Priority

- Support action groups in the county with fuels reductions projects.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Beaverhead County

High Priority

- Restore and rehabilitate forest and grassland health.
- Risk reduction project and vegetation treatment.

Broadwater County

Medium Priority

- Encourage and support USFS initiative for landscape level burning and fuel mitigation projects.
- Encourage current landowners to reduce fuels in wildland interface and around homes through a financial incentive program.

Gallatin County

Medium Priority

- Encourage homeowners to reduce fuels around structures and create a fire defensible space.
- Conduct fuels reduction along utility right-of-ways.
- Reduce fuels along ingress and egress roadways.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Lewis & Clark County

High Priority

- Develop Douglas Circle Subdivision defensible space.
- Unionville/South Hills fuels reduction.
- Develop City of Helena open space.
- York area fuels reduction.
- Develop Lincoln area defensible space.
- Develop Front Range defensible space.
- Develop Dearborn area defensible space.
- Marysville area fuels reduction.
- Develop Wolf Creek area defensible space.
- Colorado Gulch fuels reduction.
- Develop Mountain Heritage Estates defensible space.
- North Hills Fuel Hazard Reduction (Sieben livestock land).
- Priest Pass area fuels reduction.
- Develop defensible space (countywide).

Park County

Medium Priority

- Conduct fuels reduction along utility right-of-ways.
- Reduce fuels along ingress and egress roadways.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Broadwater County

High Priority

- Public education program targeting those at high risk from wildland/urban interface fires demonstrating mitigation techniques.

Gallatin County

Medium Priority

- Promote Fire Wise type programs.

Lewis & Clark County

High Priority

- Promote FIREWISE program.
- Develop continuous education and awareness of fire danger.

Park County

Medium Priority

- Promote Firewise type programs.

OBJECTIVE 3.4 - Accurately assess and address the current wildland urban interface problems at the subdivision level.

Broadwater County

High Priority

- Revise subdivision regulations to reduce wildfire and structure fire hazards such as requiring a water supply, sprinklers, and/or defensible space.

Gallatin County

Medium Priority

- Conduct individual WUI Assessments.
- Require defensible space and inspection of new development in the WUI.
- Revise subdivision regulations with a better focus on defensible space/maintenance and water supply requirements in the WUI.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.4 - Accurately assess and address the current wildland urban interface problems at the subdivision level.

Park County

Medium Priority

- Revise subdivision regulations with a better focus on defensible space/maintenance and water supply requirements in the wildland/urban interface.
- Require defensible space and inspection of new development in the wildland urban interface.

OBJECTIVE 3.6 - Establish mapping or record keeping practices to support fuel management strategies.

Beaverhead County

High Priority

- Conduct fire risk assessment.
- Examine fire fighter and public safety.
- Work with other agencies to enhance and provide funding for this process.

Gallatin County

Medium Priority

- Develop fuels mapping for public and private lands.
- Develop a centralized, countywide wildfire history database.

Park County

Medium Priority

- Develop fuels mapping for public and private lands.
- Develop a centralized, countywide wildfire history database.

GOAL 4 - Minimize economic impacts of drought.

OBJECTIVE 4.2 - Provide education and incentives for minimizing the effects of drought.

Beaverhead County

High Priority

- Local Emergency Planning Committee and Drought Taskforce sub-committee continue to meet and mitigate the drought mostly through education and awareness of the drought event.

OBJECTIVE 4.3 - Improve drought monitoring and assessments.

Beaverhead County

High Priority

- Develop aerial photos or GIS mapping of irrigation areas to determine accurate irrigation acres and areas. Support of project would help mitigate the amount of water available as related to the acreages.

Broadwater County

High Priority

- Support the Broadwater County Drought Advisory Committee.

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Beaverhead County

High Priority

- Install early warning system at Clark Canyon Dam and Lima Dam for dam failure notification.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Beaverhead County

High Priority

- Identify flood prone areas in county.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Gallatin County

Medium Priority

- Consider more restrictive regulations or prohibition of development in the floodplain.
- Conduct an analysis on the feasibility of a floodplain and floodway buyout and/or relocation program.

Madison County

Low Priority

- Using all available information, identify possible hazard mitigation efforts for targets at risk. This includes floodplain buy-outs and conservation easements, zoning to limit building in high hazard areas, and mitigating structures at risk.

Park County

Medium Priority

- Require future school facilities be constructed outside the floodplain.
- Conduct an analysis on the feasibility of a floodplain and floodway buyout and/or relocation program.
- Consider more restrictive regulations or prohibition of development in the floodplain.
- Propose to the public a Park Co. bond issue for conservation easements and promote the use of state, federal and private funds to protect values along the Yellowstone River.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Beaverhead County

High Priority

- Implement floodplain studies on unstudied rivers and streams with flood potential.
- Install a permanent stream gage (satellite communication) approx. 15 miles west on Grasshopper Creek to monitor flows about 12 hours before flows reach Beaverhead River. Allows dam tenders time to adjust flows out of dam and avoid flooding.
- Replace culverts at Reeder and Railroad Streets (in Dillon) with bridges to withstand flooding.

Medium Priority

- Clean channels of debris to maintain an adequate channel size.
- Elevate Buster Brown road bridge over the Blacktail Deer Creek.
- Install stream gages (satellite communications) in several unmonitored streams in the county.
- Remove permanent earthen structure which inhibits winter natural flows in Blacktail Deer Creek.
- Install diversion control structure in Blacktail Deer Creek channel.

Broadwater County

Medium Priority

- Evaluate the Montana Ditch crossing to ensure that the Missouri River cannot flood the City, as occurred in 1963.

Gallatin County

Medium Priority

- Study alternative flood mitigation measures.
- Establish financial incentives for landowners to remove, modify or replace obsolete and non-functioning flood control and bank stabilization structures.
- Remove woody debris, as needed to protect public safety, but not excessively as such debris is important to ecological health.
- Mitigate damages to critical facilities in the 100 year flood plain.

Lewis & Clark County

High Priority

- Reroute Silver Creek around the Sewell Subdivision.
- Install culverts at Forestvale and Mill roads.
- Install culverts at Sierra Road.
- Improve the Kmart retention ponds.
- Construct new bridge at Wylie Dr and Prickly Pear Creek north of East Helena.
- Replace cobble wall along Prickly Pear Creek in East Helena to increase carrying capacity.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Lewis & Clark County

High Priority

- Build detention pond in the upper to middle reaches of Last Chance Gulch.
- Construct bridge at Keir Dr. in East Helena Valley.

Medium Priority

- Build detention pond in the upper reaches of Davis Gulch.
- Construct retention pond in East Helena.
- Install culvert at Wylie and York roads.

Low Priority

- Install culvert at Birdseye and Barrett roads.

Madison County

Low Priority

- Conduct a floodplain mapping project for Madison Co., Town of Ennis, Town of Sheridan, and Town of Twin Bridges, consistent with FEMA mapping protocol.

Park County

Medium Priority

- Conduct a river migration study to measure the potential for river channel avulsion between the Livingston Ditch headgate and Interstate 90.
- Conduct a US Army Corps of Engineers Section 205 Flood Control Study.
- Conduct Bank Stabilization studies on project effectiveness and ecological health.
- Establish financial incentives for landowners to remove, modify, or replace obsolete and non-functioning flood control and bank stabilization structures.
- Establish a Bank Stabilization Information Clearinghouse.
- Study alternative flood mitigation measures.
- Remove woody debris, as needed to protect public safety, but not excessively as such debris is important to ecological health.
- Consider zero backwater standards during bridge reconstruction, particularly at the Highway 10/89 South Bridge and the railroad bridge just downstream.
- Lessen hydraulic impacts when the following bridges are replaced: Emigrant, Carter's, Interstate 90, Railroad at Highway 10/89 South, Highway 10/89 South, Highway 89 North, Railroad at Highway 89 North and Springdale.
- Remove abandoned bridge abutments and piers.

Sweet Grass County

High Priority

- Prioritize bridge replacement throughout the county, starting with the bridge over the Yellowstone River on Lower Sweet Grass Road near Greycliff.

OBJECTIVE 5.4 - Increase the public awareness of flood mitigation.

Broadwater County

High Priority

- Public education program targeting homes in or near the floodplain, ice jam, or dam failure inundation areas on flood mitigation options.

Medium Priority

- Disseminate flood hazard mapping to first responders and homeowners.
- Public education program on standard homeowner's insurance with emphasis on exclusions such as flooding and earthquakes and recent industry changes requiring wildfire defensible space in some areas.

Gallatin County

Medium Priority

- Education the public on flood insurance.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Gallatin County

Medium Priority

- Flood insurance education for the public.
- Map floodplain areas and join the National Flood Insurance Program in Belgrade, Manhattan and Three Forks.

Park County

Medium Priority

- Map floodplain areas and join the National Flood Insurance Program in the Town of Clyde Park.
- Join and obtain points for the Community Rating System of the National Flood Insurance Program in Park Co. and the City of Livingston.
- Educate the public on flood insurance.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Gallatin County

High Priority

- Put early warning on Hyalite Dam.

Medium Priority

- Implement security measures at the dams to include early warning systems.

Park County

Medium Priority

- Investigate widening the channel near the City of Livingston levee by resloping the north bank in a terraced fashion in the area of the preliminary floodplain map cross sections #55,000 and #56,000.

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Beaverhead County

High Priority

- Install an automated weather site (satellite communication) in the town of Wisdom to help Weather Service predict weather events.

Broadwater County

Medium Priority

- Develop and adopt a school policy regarding the use of buses in severe weather and educate school officials and bus drivers about weather decision making parameters.

Gallatin County

Medium Priority

- Become a National Weather Service Storm Ready Community in the incorporated cities and towns.

Park County

Medium Priority

- Become a National Weather Service Storm Ready Community.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Broadwater County

Medium Priority

- Public information campaign on actions that will be taken by emergency services during weather events.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.1 - Increase community capabilities to mitigate summer weather hazards.

Beaverhead County

High Priority

- Install an automated weather site (satellite communication) in the town of Wisdom to help Weather Service predict weather events.

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Beaverhead County

High Priority

- Continue working with Local Emergency Response Committee.
- Continue working with Disaster and Emergency Services.
- Purchase response equipment.
- Continue response planning and response training.

Medium Priority

- Continue identifying hazardous materials risk.

Broadwater County

Medium Priority

- Research and publish specific area information for regional HazMat teams that could assist them in mitigating impacts to the population in Broadwater County, an area not very familiar to them, during a hazardous material response.

Gallatin County

Medium Priority

- Develop emergency transportation plan that considers key roadways and intersections.

Madison County

High Priority

- Develop Hazmat response procedures for all emergency organizations.
- Develop, produce and distribute hazardous materials educational publications.
- Train 80% of all responders to Hazmat Awareness level and 20% of all responders to Hazmat Operations level.
- Develop and implement procedure for timely recovery in the event of a Hazmat incident.
- Develop county-wide Hazmat incident response plan and assure that all required mutual aid agreements are in place.
- Insure that procedures are in place for a quick response to and a timely clean up of a Hazmat incident.
- Develop early warning system to alert affected populations of a hazardous materials incident.

Park County

Medium Priority

- Study and construction of an additional railroad crossing.
- Develop an emergency transportation plan that considers key roadways and intersections.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Beaverhead County

High Priority

- Develop fixed site security and safety using local resources and homeland security resources.

Broadwater County

Medium Priority

- Secure the propane tanks with barriers from vehicles and trains and derailment guards to the railroad tracks.

Gallatin County

Medium Priority

- Improve mapping of hazardous materials fixed site locations and common transportation routes.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Madison County

High Priority

- Conduct survey to determine type and amount of hazardous materials moving through Madison Co.

GOAL 9 - Reduce potential earthquake losses in seismically prone areas.

OBJECTIVE 9.1 - Provide for earthquake resistance in new construction.

Broadwater County

Medium Priority

- Strongly adhere to State codes for public buildings and develop residential building codes to meet earthquake resistance standards.

Madison County

High Priority

- Continued geologic review of proposed sub-divisions.
- Educate new home builders as to seismic building standards and earthquake fault locations.
- Assure all future infrastructure is earthquake resistant and built to seismic code.

OBJECTIVE 9.2 - Educate the public in earthquake mitigation and readiness.

Beaverhead County

High Priority

- Work with public schools to enhance education/training on earthquake preparedness.

Broadwater County

High Priority

- Study the potential for retrofitting critical facilities, such as the school, for earthquake resistance, and if feasible, retrofit those facilities.
- Develop better HAZUS GIS data through a cooperative program with the high school GIS/GPS classes.
- Public education program on earthquakes that teaches the residents the latest hazard information and simple home retrofits to be conducted at schools, churches, businesses and other gathering places.
- Educate public works/road & bridge employees on earthquake damage prevention measures for community infrastructure.

Medium Priority

- Provide regular earthquake prevention/educational items to the local media.

Gallatin County

Medium Priority

- Earthquake retrofit education for home and business owners.

Lewis & Clark County

High Priority

- Promote Earthquake Preparedness Month each October.

Madison County

High Priority

- Produce earthquake education brochures to educate populace of proactive measures regarding earthquake safety and mitigation.
- Initiate geologic review of existing subdivisions for educational purposes.
- Educate the public sector as to earthquake mitigation measures and assist in updating earthquake plans for public entities.

Park County

Medium Priority

- Educate home and business owners on simple earthquake retrofits.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 9 - Reduce potential earthquake losses in seismically prone areas.

OBJECTIVE 9.3 - Seismically retrofit existing critical facilities/infrastructure and government assets.

Gallatin County

Medium Priority

- Survey commercial structures for earthquake stability and recommend retrofits.
- Create a financial incentive program for major earthquake retrofits in priority hazard areas.
- Inspect key bridges for seismic stability.
- Retrofit critical facilities for earthquakes.

Lewis & Clark County

Medium Priority

- Seek funding to encourage homeowners to structurally retrofit their homes.
- Use the Potential Structural Seismic Hazards analysis for Helena School District to determine pursuit of structural mitigation projects.

Low Priority

- Promote brick chimney removal mitigation project.

Madison County

High Priority

- Assist in identifying and make recommendations in retro fitting unsafe public buildings with mitigation efforts.

Park County

Medium Priority

- Survey commercial structures for earthquake stability and recommend retrofits.
- Retrofit critical government facilities for earthquakes.
- Create a financial incentive program for major earthquake retrofits in the priority hazard areas.

OBJECTIVE 9.4 - Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards.

Beaverhead County

High Priority

- Complete earthquake risk assessment at each public school and identify some mitigation project like filming windows and securing equipment.

Broadwater County

Medium Priority

- Survey local structures and provide information to emergency services (similar to old Sanborn maps).

Gallatin County

High Priority

- Tie down objects in critical facilities and vulnerable population locations that could fall during an earthquake.

Medium Priority

- Anchor transformers and generators for seismic motion during maintenance and new installations.
- Install expansion joints in underground utilities during new or replacement construction.

Lewis & Clark County

High Priority

- Provide strapping materials for water heaters to homeowners.

Madison County

High Priority

- Develop cost estimates to bring infrastructure to seismic code and make those identified improvements.
- Prioritize most vulnerable infrastructure.

Park County

High Priority

- Tie down objects in critical facilities and vulnerable population locations that could fall during an earthquake.

LOCAL MITIGATION PROJECTS

DES DISTRICT 3

GOAL 9 - Reduce potential earthquake losses in seismically prone areas.

OBJECTIVE 9.4 - Implement non-structural mitigation projects to harden State and community assets and infrastructure from seismic hazards.

Park County

Medium Priority

- Inspect key bridges for seismic stability.
- Anchor or stabilize electric transformers and generators for seismic motion during maintenance and new installations.
- Install expansion joints in underground utilities during new or replacement construction.

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Beaverhead County

High Priority

- Update and continue to enforce environmental laws, rules and regulations to protect air, soil and water of the county.
- Increase surveillance, communications planning with hospital and medical community.

Medium Priority

- Continue working with public health agencies.
- Support Public Task Order "PH Plan".

Gallatin County

Medium Priority

- Conduct a public education campaign on how to prevent the spread of disease.
- Establish a group made of area medical stakeholders to discuss disaster management and prevention issues.

Park County

Medium Priority

- Install a new ventilation system in the City/County Complex and other critical facilities.
- Conduct a public education campaign on how to prevent the spread of disease.
- Establish a group made of area medical stakeholders to discuss disaster management and prevention issues.

GOAL 11 - Encourage mitigation of potentially devastating but historically less frequent hazards.

OBJECTIVE 11.1 - Prevent losses from acts of terrorism, violence and civil unrest.

Beaverhead County

High Priority

- Continue to endorse training for WMD/Terrorism type events with the community responders and public health employees.
- Install fencing and motion sensors to activate lights at Dillon pump heads.
- Continue to train and equip emergency responders, public health workers and citizens in the area of terrorist activities using Homeland Security and Disaster and Emergency Services funds when available.

Medium Priority

- Develop more mature planning and exercising documents.
- Continue response and mitigation planning for WMD/Terrorist events.

Madison County

Medium Priority

- Assure functionality of Health Alert Network.
- Develop data base of providers with ability to track weekly reports and educate providers on tracking and reporting signs and symptoms of biological agents.
- Implement active surveillance system.
- Hire full time Public Health Officer.



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

APPENDIX E

DISTRICT 4 DOCUMENTATION

***Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Projects***

SOUTHEAST MONTANA JURISDICTIONS

**Carter County
Custer County
Dawson County
Fallon County
Garfield County
McCone County
Prairie County
Powder River County
Richland County
Wibaux County**

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/28/07

LOCATION: Miles City - District 4

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digrindakis	Tetra Tech		daphne.digrindakis@tetra-tech.com
Carol Kelley	Harfield Co. DES	166	chellier@midrivers.com
Norman R. Tartant	DNR/PPS	-1-	pyper@midrivers.com
John Marks	City of Miles City	-1-	jmarks@midrivers.com
Joy Fleming	City of Miles City	1	jflaming@midrivers.com
Greg Zuroff	City of Glendive	150	zuroff@midrivers.com
George Lane	City of Glendive/Fire Chief	150	lane@midrivers.com
Jody Menyhart	Custer Co. - Nursing Preparedness	1	j.menyhart@co.custer.mt.us
Alan Stempel	McCone County DES	160	alan.stempel@as.org.mt
Jim Zabrocki	Custer County Sanitation/DES		ales@midrivers.com
Jack A. Nesbitt	Custer Co. Commissioner		j.nesbitt@co.custer.mt.us
Clyde Leischner	Holy Rosary Healthcare		Clyde.leischner@hrh-mt.org

Meeting State Time: 0905

Meeting End Time:

11:15

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/28/07

LOCATION: Miles City, MT

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Mike Fuller	Carbon County Commissioner		
Kent Anwood	MT-DES	330	Katwood@mt.gov
Derrick Rodgers	Miles City Fire Dept	0	drodgers@mtcity-mt.gov
Wendy Richards	Puster Co. Public Health	0	w.richards@pocuster.mt.us

Meeting State Time: 0905

Meeting End Time: 11:15

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Wednesday, March 28, 2007

Time: 9:05 am – 11:15 am

Place: Miles City, Montana

Meeting Attendance:

Carol Hellyer, Garfield County DES

Norman R Tarrent, DMA/DES

John Marks, City of Miles City

Joy Fleming, City of Miles City

Gary Zuroff, City of Glendive

George Lane, City of Glendive/Fire Chief

Jody Menyhart, Custer County Nursing & Preparedness

Alan Stempel, McCone County DES

Jim Zabrocki, Custer County Sanitarian/DES

Jack Nesbit, Custer County Commissioner

Clyde Leischner, Holy Rosary Healthcare

Milo Huber, Custer County Commissioner

Derrick Rodgers, Miles City Fire Department

Wendy Richards, Custer County Public Health

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 4

Meeting Discussion on Hazards Affecting District 4

Possible addition of Public Health hazard and Bio-Terrorism hazard to the State Plan.

These hazards have the potential to impact a lot of people and should be in the State Plan rather than the local plans.

DNRC sent out a flyer asking local governments to consider implementing set backs along the rivers and streams in Montana. Dawson County noted that Glendive currently does not allow building behind the dike in the city. Additionally, Glendive has floodplain acquisition projects that still have potential.

City of Miles City is considering acquiring property in the floodplain for taxes; structures would then be relocated or demolished using PDMC. The delinquent taxes could be used for cost share match. Additionally, Miles City Tongue River Slough project is still pending and has potential for a PDMC project application.

ASSESSMENT OF HAZARDS – DISTRICT 4

Drought

Garfield – Change Not Assessed to High
McCone - High
Richland - High
Dawson – Change Medium to High
Prairie - High
Wibaux - High
Custer - Medium
Fallon - Medium
Powder River – Not Assessed
Carter – High

It was noted that some counties had a different perspective at the time their PDM was written on what defined the drought hazard. Risk ratings for Dawson County depended on who attended the public meetings when the plan was being drafted; the top five risks were identified and prioritized with regard to time, effort and money. Dawson County noted that they stand out as an anomaly next to the surrounding counties. Their rating should be changed to high risk and the change should be presented at the annual LEPC meeting and a copy of changes faxed to the MT-DES and FEMA. Additionally, the County noted that Dawson Co. irrigation district can pump water out of Yellowstone, but wondered if irrigators had to ask the Crow to release waters?

Garfield County originally thought that drought was an unlikely mitigation action and consequently did not assess this hazard. Their risk rating is upgraded to high and this change will be addressed with their LEPC.

Earthquake

Garfield - Low
McCone - Low
Richland - Low
Dawson – Change Not Assessed to Low
Prairie - Change Not Assessed to Low
Wibaux - Change Not Assessed to Low
Custer - Change Not Assessed to Low
Fallon - Change Not Assessed to Low
Powder River - Low
Carter - Low

All counties with no risk assessment for earthquakes were upgraded to low. Earthquakes that happen in Missoula have a high probability of indirectly affecting power, roads, infrastructure etc. in the rest of the state.

Flood

Garfield – Change High to Low
McCone - High

Richland - Medium
Dawson - High
Prairie - Medium
Wibaux - High
Custer – Change Medium to High
Fallon - Medium
Powder River - High
Carter - Low

Risk in Custer County is upgraded to high because Miles City is rated high for possible flooding. Additionally, a breach of the Tongue River Reservoir would affect a large part of Custer County.

Garfield County noted that their originally high risk rating should be changed to low.

Hazardous Material Incident

Garfield - Medium
McCone - Medium
Richland - Medium
Dawson – Change Low to High
Prairie – Change Low to High
Wibaux – Change Medium to High
Custer - Low
Fallon - High
Powder River - High
Carter – Change Low to High

Participants noted that Custer, Prairie, Dawson and Wibaux counties should be upgraded to high risk as major transportation corridors run through these counties. Additionally, it was observed that the Updated State PDM Plan should identify all transportation corridors through the state and rate their associated jurisdictions as high for hazardous material incident hazard.

Landslide

Garfield – Not Assessed
McCone – Not Assessed
Richland - Medium
Dawson - Not Assessed
Prairie - Not Assessed
Wibaux - Not Assessed
Custer - Not Assessed
Fallon - Not Assessed
Powder River - Not Assessed
Carter – Low

Participants questioned the risk ratings for Richland and Carter counties.

Severe Thunderstorms, Hail, Wind and Tornadoes

Garfield - High
McCone - High
Richland - Medium
Dawson – Change Low to High
Prairie - Medium
Wibaux - Low
Custer - Medium
Fallon - Low
Powder River - High
Carter - High

It was noted that Dawson, Wibaux and Fallon were rated as low risk for severe summer weather. Dawson County requested an upgrade to high risk. Severe summer weather puts lives and property values at risk. Economic value loss and cost benefit should also be considered.

Three years ago when the State Plan was crafted, severe summer weather was discussed in depth but no consensus on priority was achieved. The last few years have shown that Presidential disasters have been issued as a result of severe weather and participants suggested that this be reflected in a higher priority for this hazard.

Terrorism and Violence

Garfield - Low
McCone – Not Assessed
Richland - Not Assessed
Dawson - Not Assessed
Prairie – Change from Not Assessed to Low
Wibaux - Not Assessed
Custer - Not Assessed
Fallon - Not Assessed
Powder River - Low
Carter – Low

Garfield County noted that a cell of Freeman still reside in the county so a low risk rating for terrorism and violence is appropriate.

Prairie County is upgraded to low risk as they had some terrorism and violence that caused them to build a new courthouse.

Volcanic Eruption

Garfield - Low
McCone - Low
Richland - Low
Dawson - Not Assessed

Prairie - Low
Wibaux - Not Assessed
Custer - Not Assessed
Fallon - Not Assessed
Powder River - Low
Carter - Not Assessed

Participants agreed that risk ratings for a volcanic eruption are appropriate and no changes are required.

Wildfire

Garfield - High
McCone - High
Richland - High
Dawson - High
Prairie - High
Wibaux – Change from Medium to High
Custer - High
Fallon - High
Powder River - High
Carter - High

Participants noted that Wibaux County should be upgraded to high risk for wildfire.

Winterstorms

Garfield - High
McCone - High
Richland - Medium
Dawson – Change Medium to High
Prairie - High
Wibaux – Change from Low to High
Custer – Change Medium to High
Fallon – Change from Medium to High
Powder River - High
Carter – High

Participants noted that Custer and Dawson counties should be upgraded to high risk for winterstorms. It was also noted that Wibaux, Fallon, Carter and Powder River counties should probably all be rated the same for this hazard. Consequently, Fallon and Wibaux counties were upgraded to high risk for winterstorms.

ASSESSMENT OF STATE GOALS – DISTRICT 4

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Discussed the modifications suggested at the Billings, MT meeting where the language is changed to "Assist locals with mitigation opportunities".

Goal 3: Mitigate the potential loss of life and property from flooding.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

It was noted that the primary way to reduce/mitigate fire is to discourage people from moving into the WUI. This becomes a zoning, ordinance issue that is difficult for local governments. Should responsibility be shifted to local homeowners? Responsible growth, not sustainable growth, is the issue in the WUI.

Goal 5: Reduce potential earthquake losses in Western Montana.

Goal 6: Minimize economic impacts of drought.

Goal 7: Reduce impacts from severe winter weather.

District 4 participants felt that the winterstorm hazard should be elevated to a much higher goal priority in the updated State PDM Plan.

Dawson County noted the omission of five winterstorm projects from the mitigation projects report.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

OTHER COMMENTS

Participants suggested that the top three goals be summarized for each county, summarized for each district and added to the State Plan. These summaries will be presented at the April 19th stakeholders meeting. Additionally, the goals of every local plan should be presented by the top three goals.

It was noted that there is no goal or objective in the State Plan and local District 4 plans for wind events. Should there be?

The counties noted that risk is different than priority and felt that the difference should be explained.

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Wednesday, March 28, 2007

Time: 5:14 pm – 5:57 pm

Place: Sidney, Montana

Meeting Attendance:

Rob Gilbert, Jr., Sidney Volunteer Fire Dept. and Richland Co. DES

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 4

Meeting Discussion on Hazards Affecting District 4

Richland County has seen tremendous population growth with the development of oil wells, new natural gas (propane/butane) plants and new pipelines. There is a lot of new homebuilding going on in Sidney. As construction is not necessarily in or near any CRP lands (which suggests fire danger) or in the floodplain, these hazards are not issues yet. Other issues in Richland County include the railroad transfer plan with propane cars and loading, and increasingly high HAZMAT risk with heavy use of the transportation corridors.

Top hazards for Richland County area as follows: 1. Drought, 2. Wildfire (comes directly from thunderstorms and other severe summer weather) and, 3. Hazardous Material Incidents.

ASSESSMENT OF HAZARDS – DISTRICT 4

Drought

Garfield – Change Not Assessed to High (during Miles City meeting)

McCone - High

Richland - High

Dawson – Change Medium to High (during Miles City meeting)

Prairie - High

Wibaux - High

Custer - Medium

Fallon - Medium

Powder River – Not Assessed

Carter – High

No changes are necessary for Richland County but Mr. Gilbert wondered why Custer, Fallon and Dawson counties are only medium risk for drought. Mr. Gilbert also suggested that drought and wildfire hazards should be joined together in some fashion.

Earthquake

Garfield - Low

McCone - Low

Richland - Low

Dawson - Change Not Assessed to Low (during Miles City meeting)

Prairie - Change Not Assessed to Low (during Miles City meeting)

Wibaux - Change Not Assessed to Low (during Miles City meeting)

Custer - Change Not Assessed to Low (during Miles City meeting)

Fallon - Change Not Assessed to Low (during Miles City meeting)

Powder River - Low

Carter - Low

Mr. Gilbert felt that a low risk rating for earthquakes was still appropriate for Richland County.

Flood

Garfield - Change High to Low (during Miles City meeting)

McCone - High

Richland - Medium

Dawson - High

Prairie - Medium

Wibaux - High

Custer - Change Medium to High (during Miles City meeting)

Fallon - Medium

Powder River - High

Carter - Low

As Richland County has mostly lowland riverine and creek type flooding, a medium risk rating is correct for this hazard.

Hazardous Material Incident

Garfield - Medium

McCone - Medium

Richland - Change Medium to High

Dawson - Change Low to High (during Miles City meeting)

Prairie - Change Low to High (during Miles City meeting)

Wibaux - Change Medium to High (during Miles City meeting)

Custer - Low

Fallon - High

Powder River - High

Carter - Change Low to High (during Miles City meeting)

Richland County is now the highest oil producing county in the state and the risk for a hazardous material incident should be upgraded to high. There is increased oil production and heavy truck traffic moving along county transportation corridors. The

County is concerned about trucks carrying materials that are not marked for security reasons.

Landslide

Garfield – Not Assessed
McCone – Not Assessed
Richland – Change Medium to Low
Dawson - Not Assessed
Prairie - Not Assessed
Wibaux - Not Assessed
Custer - Not Assessed
Fallon - Not Assessed
Powder River - Not Assessed
Carter – Low

Richland County did not see a reason for a medium risk rating for landslides and requested a change to low risk.

Severe Thunderstorms, Hail, Wind and Tornadoes

Garfield - High
McCone - High
Richland - Medium
Dawson – Change Low to High (during Miles City meeting)
Prairie - Medium
Wibaux - Low
Custer - Medium
Fallon - Low
Powder River - High
Carter – High

Mr. Gilbert felt the medium risk rating for severe summer weather is correct.

Terrorism and Violence

Garfield - Low
McCone – Not Assessed
Richland – Change Not Assessed to Low
Dawson - Not Assessed
Prairie – Change from Not Assessed to Low (during Miles City meeting)
Wibaux - Not Assessed
Custer - Not Assessed
Fallon - Not Assessed
Powder River - Low
Carter – Low

Richland County requested that their risk rating for Terrorism and Violence be upgraded to low to reflect increased petroleum infrastructure.

Volcanic Eruption

Garfield - Low
McCone - Low
Richland - Low
Dawson - Not Assessed
Prairie - Low
Wibaux - Not Assessed
Custer - Not Assessed
Fallon - Not Assessed
Powder River - Low
Carter - Not Assessed

No changes were deemed necessary.

Wildfire

Garfield - High
McCone - High
Richland - High
Dawson - High
Prairie - High
Wibaux - Change from Medium to High (during Miles City meeting)
Custer - High
Fallon - High
Powder River - High
Carter - High

Mr. Gilbert observed that Wibaux County should probably be upgraded from medium to high risk for wildfire hazard.

Winterstorms

Garfield - High
McCone - High
Richland - Change Medium to High
Dawson - Change Medium to High (during Miles City meeting)
Prairie - High
Wibaux - Change from Low to High (during Miles City meeting)
Custer - Change Medium to High (during Miles City meeting)
Fallon - Change from Medium to High (during Miles City meeting)
Powder River - High
Carter - High

Richland County noted that the last bad storm was in 1988 and since then, winterstorms have not been much of a threat. However, Richland County noted that if Dawson County upgrades to high risk, they would also upgrade to high risk. Mr. Gilbert requested that a draft be sent to Richland County LEPC to review in May.

ASSESSMENT OF STATE GOALS – DISTRICT 4

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Serious fire risk is present in the Elk Island (near Savage) and Seven Sisters Island (near Crane) areas and a fuels reduction project is needed in these areas.

Goal 5: Reduce potential earthquake losses in Western Montana.

Goal 6: Minimize economic impacts of drought.

Goal 7: Reduce impacts from severe winter weather.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

OTHER COMMENTS

Richland County felt that the current state goals seem okay as written. However, drought should have a higher priority than flooding and earthquakes.

Mr. Gilbert will take the Goals, Objectives and project lists to the Richland County LEPC for further discussion and review.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results

What jurisdiction type do you represent?		
	Response Percent	Response Count
Federal <input type="checkbox"/>	3.2%	1
State <input type="checkbox"/>	3.2%	1
County <input type="text"/>	41.9%	13
Tribal	0.0%	0
Public Utility <input type="checkbox"/>	3.2%	1
General Public <input type="checkbox"/>	6.5%	2
Other (please specify) <input type="text"/>	41.9%	13
answered question		31
skipped question		0

What County/Tribal Community do you represent or as a private citizen where do you live?		
	Response Percent	Response Count
Blackfeet	0.0%	0
Crow	0.0%	0
Flathead	0.0%	0
Fort Belknap	0.0%	0
Fort Peck	0.0%	0
Northern Cheyenne	0.0%	0
Rocky Boy's	0.0%	0
Beaverhead	0.0%	0
Big Horn	0.0%	0
Blaine	0.0%	0
Broadwater	0.0%	0
Carbon	0.0%	0
Carter <input type="checkbox"/>	3.2%	1
Cascade	0.0%	0
Chouteau	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Custer	<input type="checkbox"/>	12.9%	4
Daniels		0.0%	0
Dawson	<input type="checkbox"/>	61.3%	19
Deer Lodge		0.0%	0
Fallon	<input type="checkbox"/>	3.2%	1
Fergus		0.0%	0
Flathead		0.0%	0
Gallatin		0.0%	0
Garfield	<input type="checkbox"/>	3.2%	1
Glacier		0.0%	0
Golden Valley		0.0%	0
Granite		0.0%	0
Hill		0.0%	0
Jefferson		0.0%	0
Judith Basin		0.0%	0
Lake		0.0%	0
Lewis And Clark		0.0%	0
Liberty		0.0%	0
Lincoln		0.0%	0
Madison		0.0%	0
McCone	<input type="checkbox"/>	3.2%	1
Meagher		0.0%	0
Mineral		0.0%	0
Missoula		0.0%	0
Musselshell		0.0%	0
Park		0.0%	0
Petroleum		0.0%	0
Phillips		0.0%	0
Pondera		0.0%	0
Powder River		0.0%	0
Powell		0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie	0.0%	0
Ravalli	0.0%	0
Richland	9.7%	3
Roosevelt	0.0%	0
Rosebud	0.0%	0
Sanders	0.0%	0
Sheridan	0.0%	0
Silver Bow	0.0%	0
Stillwater	0.0%	0
Sweet Grass	0.0%	0
Teton	0.0%	0
Toole	0.0%	0
Treasure	0.0%	0
Valley	0.0%	0
Wheatland	0.0%	0
Wibaux	3.2%	1
Yellowstone	0.0%	0
Other	0.0%	0
answered question		31
skipped question		0

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.		
	Response Percent	Response Count
Yes	25.8%	8
No	74.2%	23
answered question		31
skipped question		0

How would you rate the overall quality and content of the plan.		
	Response Percent	Response Count
1 - Poor	0.0%	0
2	0.0%	0
3 - Average	28.6%	2
4	71.4%	5
5 - Excellent	0.0%	0
answered question		7
skipped question		24

Do you feel the plan accurately portrays natural and man-made hazards in Montana?		
	Response Percent	Response Count
Yes	100.0%	7
No	0.0%	0
answered question		7
skipped question		24

What improvements do you think could be made to the plan?		Response Count
		4
answered question		4
skipped question		27

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction.
High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	4.2% (1)	70.8% (17)	25.0% (6)	2.21	24
Drought	70.8% (17)	16.7% (4)	12.5% (3)	1.42	24
Earthquake	4.2% (1)	4.2% (1)	91.7% (22)	2.88	24
Flooding/Dam Failure	33.3% (8)	29.2% (7)	37.5% (9)	2.04	24
Hazardous Material Incidents	33.3% (8)	54.2% (13)	12.5% (3)	1.79	24
Landslide	0.0% (0)	20.8% (5)	79.2% (19)	2.79	24
Terrorism/Violence	4.2% (1)	8.3% (2)	87.5% (21)	2.83	24
Thunderstorm Wind, Hail, and Tornadoes	70.8% (17)	25.0% (6)	4.2% (1)	1.33	24
Volcanic Eruption	0.0% (0)	4.2% (1)	95.8% (23)	2.96	24
Wildfire	54.2% (13)	29.2% (7)	16.7% (4)	1.63	24
Winter Storms/Avalanche	54.2% (13)	37.5% (9)	8.3% (2)	1.54	24
answered question					24
skipped question					7

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.		
	Response Percent	Response Count
Communicable Disease	85.7%	12
Drought	71.4%	10
Earthquake	50.0%	7
Flooding/Dam Failure	85.7%	12
Hazardous Material Incidents	71.4%	10
Landslide	50.0%	7
Terrorism/Violence	57.1%	8
Thunderstorm Wind, Hail, and Tornadoes	71.4%	10
Volcanic Eruption	42.9%	6
Wildfire	78.6%	11
Winter Storms/Avalanche	71.4%	10
	answered question	14
	skipped question	17

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=highest / 10=lowest):

	High				Medium					Low	Rating Average
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	25.0% (5)	15.0% (3)	10.0% (2)	10.0% (2)	20.0% (4)	5.0% (1)	5.0% (1)	10.0% (2)	0.0% (0)	0.0% (0)	3.70
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	28.6% (6)	19.0% (4)	19.0% (4)	4.8% (1)	19.0% (4)	9.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.95
Reduce the Community Impacts of Wildland and Rangeland Fires	19.0% (4)	19.0% (4)	14.3% (3)	14.3% (3)	23.8% (5)	0.0% (0)	4.8% (1)	0.0% (0)	4.8% (1)	0.0% (0)	3.52
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	33.3% (7)	14.3% (3)	14.3% (3)	0.0% (0)	19.0% (4)	0.0% (0)	9.5% (2)	4.8% (1)	0.0% (0)	4.8% (1)	3.52
Minimize Economic Impacts of Drought	23.8% (5)	19.0% (4)	14.3% (3)	14.3% (3)	9.5% (2)	4.8% (1)	4.8% (1)	4.8% (1)	4.8% (1)	0.0% (0)	3.52
Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)	14.3% (3)	23.8% (5)	23.8% (5)	9.5% (2)	23.8% (5)	0.0% (0)	4.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.24
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	19.0% (4)	23.8% (5)	23.8% (5)	9.5% (2)	19.0% (4)	4.8% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.00
Reduce Potential Earthquake Losses in Western Montana	5.0% (1)	10.0% (2)	5.0% (1)	0.0% (0)	15.0% (3)	0.0% (0)	5.0% (1)	15.0% (3)	0.0% (0)	45.0% (9)	7.20
Reduce Losses from Hazardous Material Incidents	14.3% (3)	4.8% (1)	38.1% (8)	0.0% (0)	9.5% (2)	9.5% (2)	4.8% (1)	9.5% (2)	9.5% (2)	0.0% (0)	4.38
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	4.8% (1)	0.0% (0)	28.6% (6)	4.8% (1)	19.0% (4)	4.8% (1)	0.0% (0)	19.0% (4)	19.0% (4)	0.0% (0)	5.57
answered question											
skipped question											

Please indicate any additional Goals you think should be added to the State Plan.

	Response Count
	1
answered question	1
skipped question	30

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.											
	High				Medium				Low		Rating Average
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	10.5% (2)	21.1% (4)	10.5% (2)	5.3% (1)	31.6% (6)	10.5% (2)	5.3% (1)	5.3% (1)	0.0% (0)	0.0% (0)	4.05
Conduct Level 1 HAZUS-MH analyses for all Montana counties	15.8% (3)	10.5% (2)	15.8% (3)	10.5% (2)	21.1% (4)	10.5% (2)	10.5% (2)	5.3% (1)	0.0% (0)	0.0% (0)	4.11
Improve Statewide HAZUS data	10.5% (2)	21.1% (4)	5.3% (1)	5.3% (1)	31.6% (6)	10.5% (2)	5.3% (1)	10.5% (2)	0.0% (0)	0.0% (0)	4.32
Determine GPS locations of all State buildings for detailed, non-public analysis	5.6% (1)	16.7% (3)	5.6% (1)	5.6% (1)	27.8% (5)	5.6% (1)	11.1% (2)	5.6% (1)	5.6% (1)	11.1% (2)	5.33
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	5.3% (1)	15.8% (3)	15.8% (3)	5.3% (1)	26.3% (5)	10.5% (2)	0.0% (0)	10.5% (2)	5.3% (1)	5.3% (1)	4.84
Promote earth science education of hazards in schools	10.5% (2)	5.3% (1)	0.0% (0)	26.3% (5)	21.1% (4)	0.0% (0)	15.8% (3)	5.3% (1)	0.0% (0)	15.8% (3)	5.42
Conduct a Statewide warning capability assessment	21.1% (4)	5.3% (1)	15.8% (3)	21.1% (4)	10.5% (2)	5.3% (1)	10.5% (2)	5.3% (1)	5.3% (1)	0.0% (0)	4.11
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	16.7% (3)	16.7% (3)	11.1% (2)	16.7% (3)	16.7% (3)	11.1% (2)	5.6% (1)	5.6% (1)	0.0% (0)	0.0% (0)	3.83
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	15.8% (3)	15.8% (3)	5.3% (1)	31.6% (6)	5.3% (1)	10.5% (2)	15.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	3.89
Increase the public awareness of hazards	10.5% (2)	21.1% (4)	15.8% (3)	21.1% (4)	21.1% (4)	0.0% (0)	10.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.63
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	10.5% (2)	10.5% (2)	31.6% (6)	15.8% (3)	5.3% (1)	5.3% (1)	5.3% (1)	10.5% (2)	0.0% (0)	5.3% (1)	4.21
Increase readiness for the protection of life and property during an event	36.8% (7)	26.3% (5)	10.5% (2)	10.5% (2)	5.3% (1)	5.3% (1)	5.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.58

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

2

answered question

2

skipped question

29

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High		Medium				Low				Rating Average
Continue outreach of mitigation project funding opportunities	26.3% (5)	26.3% (5)	31.6% (6)	0.0% (0)	15.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.53
Provide technical assistance with the environmental review process	21.1% (4)	15.8% (3)	15.8% (3)	21.1% (4)	15.8% (3)	5.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	5.3% (1)	3.47
Provide technical assistance for project development	26.3% (5)	15.8% (3)	15.8% (3)	21.1% (4)	21.1% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.95
Create an electronic database of completed mitigation projects in Montana	10.5% (2)	10.5% (2)	10.5% (2)	10.5% (2)	21.1% (4)	0.0% (0)	10.5% (2)	15.8% (3)	0.0% (0)	10.5% (2)	5.16
Increase the scope and participation of the State Hazard Mitigation Team	10.5% (2)	10.5% (2)	15.8% (3)	10.5% (2)	26.3% (5)	0.0% (0)	15.8% (3)	5.3% (1)	0.0% (0)	5.3% (1)	4.58
Create a private advisory group for mitigation	5.3% (1)	5.3% (1)	5.3% (1)	15.8% (3)	21.1% (4)	5.3% (1)	5.3% (1)	15.8% (3)	5.3% (1)	15.8% (3)	6.00
Streamline mitigation standards in state and/or local subdivision regulations	16.7% (3)	11.1% (2)	0.0% (0)	5.6% (1)	38.9% (7)	16.7% (3)	5.6% (1)	0.0% (0)	0.0% (0)	5.6% (1)	4.50
Strengthen state and/or local building codes	5.3% (1)	5.3% (1)	5.3% (1)	15.8% (3)	26.3% (5)	21.1% (4)	0.0% (0)	5.3% (1)	5.3% (1)	10.5% (2)	5.47
Require growth policies consider natural and man-made hazard	11.1% (2)	5.6% (1)	11.1% (2)	16.7% (3)	38.9% (7)	5.6% (1)	0.0% (0)	11.1% (2)	0.0% (0)	0.0% (0)	4.39
Create a state funded grant program to assist with the 25% match for local governments	11.1% (2)	22.2% (4)	11.1% (2)	27.8% (5)	16.7% (3)	5.6% (1)	0.0% (0)	0.0% (0)	5.6% (1)	0.0% (0)	3.67
Coordinate local plan development	5.6% (1)	27.8% (5)	16.7% (3)	16.7% (3)	22.2% (4)	5.6% (1)	0.0% (0)	0.0% (0)	5.6% (1)	0.0% (0)	3.72
Provide technical assistance with											

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	21.1%	5.3%	21.1%	21.1%	26.3%	0.0%	5.3%	0.0%	0.0%	0.0%	3.47
	(4)	(1)	(4)	(4)	(5)	(0)	(1)	(0)	(0)	(0)	
	answered question										
	skipped question										

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.										
										Response Count
										0
										answered question
										0
										skipped question
										31

Goal: Mitigate the potential loss of life and property from flooding.											
	High				Medium				Low		Rating Average
Develop and improve upon model floodplain ordinances for local governments	5.6% (1)	27.8% (5)	16.7% (3)	16.7% (3)	11.1% (2)	0.0% (0)	5.6% (1)	0.0% (0)	11.1% (2)	5.6% (1)	4.28
Develop mapping for unmapped flood prone areas	11.1% (2)	22.2% (4)	22.2% (4)	0.0% (0)	27.8% (5)	5.6% (1)	0.0% (0)	0.0% (0)	5.6% (1)	5.6% (1)	4.00
Update floodplain mapping of mapped areas	11.1% (2)	16.7% (3)	27.8% (5)	5.6% (1)	27.8% (5)	0.0% (0)	0.0% (0)	0.0% (0)	5.6% (1)	5.6% (1)	3.94
Establish a schedule for NFIP map reviews and updates	11.1% (2)	16.7% (3)	0.0% (0)	16.7% (3)	33.3% (6)	5.6% (1)	5.6% (1)	5.6% (1)	5.6% (1)	0.0% (0)	4.44
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	22.2% (4)	22.2% (4)	11.1% (2)	5.6% (1)	16.7% (3)	0.0% (0)	0.0% (0)	5.6% (1)	11.1% (2)	5.6% (1)	4.06
Increase the public awareness of flood mitigation	11.1% (2)	16.7% (3)	16.7% (3)	5.6% (1)	22.2% (4)	11.1% (2)	5.6% (1)	5.6% (1)	5.6% (1)	0.0% (0)	4.28
Reduce the number of current and future structures in the floodplain	16.7% (3)	5.6% (1)	11.1% (2)	11.1% (2)	27.8% (5)	11.1% (2)	0.0% (0)	11.1% (2)	0.0% (0)	5.6% (1)	4.56
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	11.1% (2)	16.7% (3)	11.1% (2)	22.2% (4)	16.7% (3)	11.1% (2)	5.6% (1)	5.6% (1)	0.0% (0)	0.0% (0)	4.00
Provide adequate warning of flooding events	22.2% (4)	16.7% (3)	16.7% (3)	16.7% (3)	22.2% (4)	0.0% (0)	5.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.22

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

30

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium				Low		Rating Average
Reduce fuels in the wildland urban interface	16.7% (3)	5.6% (1)	22.2% (4)	11.1% (2)	27.8% (5)	5.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (2)	4.22
Reduce hazardous fuels in rangeland areas	17.6% (3)	0.0% (0)	29.4% (5)	11.8% (2)	23.5% (4)	0.0% (0)	5.9% (1)	0.0% (0)	5.9% (1)	5.9% (1)	4.24
Accurately assess and address the current wildland urban interface problems at the subdivision level	16.7% (3)	0.0% (0)	27.8% (5)	22.2% (4)	16.7% (3)	5.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (2)	4.17
Enhance firefighting resources and improve firefighting capabilities	33.3% (6)	27.8% (5)	16.7% (3)	11.1% (2)	5.6% (1)	0.0% (0)	0.0% (0)	0.0% (0)	5.6% (1)	0.0% (0)	2.61
Enhance community awareness of wildfires through education	16.7% (3)	16.7% (3)	11.1% (2)	27.8% (5)	11.1% (2)	5.6% (1)	0.0% (0)	0.0% (0)	5.6% (1)	5.6% (1)	3.89
Enhance effectiveness of response and evacuation	11.8% (2)	35.3% (6)	17.6% (3)	5.9% (1)	5.9% (1)	11.8% (2)	5.9% (1)	0.0% (0)	5.9% (1)	0.0% (0)	3.53
Establish mapping or record keeping practices to support fuel management strategies	5.6% (1)	11.1% (2)	11.1% (2)	16.7% (3)	16.7% (3)	11.1% (2)	5.6% (1)	5.6% (1)	0.0% (0)	16.7% (3)	5.28
Minimize human-caused ignition sources in fire-prone areas	22.2% (4)	11.1% (2)	16.7% (3)	5.6% (1)	27.8% (5)	5.6% (1)	5.6% (1)	0.0% (0)	0.0% (0)	5.6% (1)	3.83
Centralize fire history documentation	5.6% (1)	5.6% (1)	16.7% (3)	11.1% (2)	16.7% (3)	11.1% (2)	11.1% (2)	5.6% (1)	0.0% (0)	16.7% (3)	5.50
Develop a consistent Statewide fire risk assessment system	5.9% (1)	5.9% (1)	23.5% (4)	11.8% (2)	29.4% (5)	5.9% (1)	0.0% (0)	11.8% (2)	0.0% (0)	5.9% (1)	4.71
Encourage sustainable growth in wildland fire hazard areas	5.6% (1)	11.1% (2)	5.6% (1)	16.7% (3)	33.3% (6)	11.1% (2)	0.0% (0)	5.6% (1)	5.6% (1)	5.6% (1)	4.94

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

31

Goal: Reduce potential earthquake losses in Western Montana.

	High		Medium				Low				Rating Average
Goal: Reduce potential earthquake losses in Western Montana.	5.9%	5.9%	5.9%	5.9%	29.4%	23.5%	5.9%	0.0%	0.0%	17.6%	5.65
	(1)	(1)	(1)	(1)	(5)	(4)	(1)	(0)	(0)	(3)	
Provide greater enforcement of current building codes	5.9%	11.8%	5.9%	17.6%	11.8%	5.9%	17.6%	0.0%	0.0%	23.5%	5.71
	(1)	(2)	(1)	(3)	(2)	(1)	(3)	(0)	(0)	(4)	
Develop model seismic building codes	5.9%	5.9%	5.9%	5.9%	29.4%	5.9%	17.6%	5.9%	0.0%	17.6%	5.88
	(1)	(1)	(1)	(1)	(5)	(1)	(3)	(1)	(0)	(3)	
Create stronger building standards for critical facilities and structures housing vulnerable populations	18.8%	6.3%	0.0%	6.3%	31.3%	6.3%	12.5%	0.0%	0.0%	18.8%	5.25
	(3)	(1)	(0)	(1)	(5)	(1)	(2)	(0)	(0)	(3)	
Require earthquake drills in schools in Western Montana	12.5%	0.0%	6.3%	12.5%	31.3%	6.3%	12.5%	0.0%	0.0%	18.8%	5.50
	(2)	(0)	(1)	(2)	(5)	(1)	(2)	(0)	(0)	(3)	
Expand and upgrade earthquake monitoring network and reporting capabilities	18.8%	0.0%	6.3%	0.0%	12.5%	18.8%	18.8%	0.0%	0.0%	25.0%	5.94
	(3)	(0)	(1)	(0)	(2)	(3)	(3)	(0)	(0)	(4)	
Continue "Earthquake Preparedness Month" outreach activities during the month of October	12.5%	6.3%	12.5%	0.0%	18.8%	6.3%	12.5%	0.0%	6.3%	25.0%	5.88
	(2)	(1)	(2)	(0)	(3)	(1)	(2)	(0)	(1)	(4)	
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	12.5%	6.3%	6.3%	0.0%	25.0%	6.3%	18.8%	0.0%	0.0%	25.0%	5.88
	(2)	(1)	(1)	(0)	(4)	(1)	(3)	(0)	(0)	(4)	
Seismically retrofit existing critical facilities and government assets	6.7%	6.7%	13.3%	0.0%	26.7%	6.7%	20.0%	0.0%	0.0%	20.0%	5.73
	(1)	(1)	(2)	(0)	(4)	(1)	(3)	(0)	(0)	(3)	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

30

Goal: Minimize economic impacts of drought.

	High			Medium						Low	Rating Average
Develop a system for distributing information on current conditions	18.8% (3)	12.5% (2)	6.3% (1)	12.5% (2)	25.0% (4)	6.3% (1)	6.3% (1)	6.3% (1)	0.0% (0)	6.3% (1)	4.31
Continue to support the State Drought Advisory Committee	18.8% (3)	12.5% (2)	18.8% (3)	0.0% (0)	25.0% (4)	0.0% (0)	12.5% (2)	6.3% (1)	0.0% (0)	6.3% (1)	4.25
Install Statewide drought monitoring stations	12.5% (2)	12.5% (2)	0.0% (0)	18.8% (3)	31.3% (5)	12.5% (2)	0.0% (0)	6.3% (1)	0.0% (0)	6.3% (1)	4.56
Use long-term groundwater monitoring to assess drought conditions	12.5% (2)	18.8% (3)	12.5% (2)	12.5% (2)	25.0% (4)	0.0% (0)	6.3% (1)	6.3% (1)	0.0% (0)	6.3% (1)	4.19
Educate farmers and ranchers in fiscally preventing drought losses	25.0% (4)	18.8% (3)	6.3% (1)	6.3% (1)	18.8% (3)	6.3% (1)	6.3% (1)	6.3% (1)	0.0% (0)	6.3% (1)	3.94
Educate farmers and ranchers in reducing physical losses during dry seasons	18.8% (3)	25.0% (4)	6.3% (1)	12.5% (2)	12.5% (2)	6.3% (1)	6.3% (1)	6.3% (1)	0.0% (0)	6.3% (1)	3.94
Identify water retention projects that could lessen the effects of drought	18.8% (3)	18.8% (3)	25.0% (4)	6.3% (1)	18.8% (3)	0.0% (0)	6.3% (1)	6.3% (1)	0.0% (0)	0.0% (0)	3.44
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

31

Goal: Reduce impacts from severe winter weather.

High

Medium

Low

Rating
Average

Distribute winter driving and survival tips	25.0% (4)	12.5% (2)	6.3% (1)	12.5% (2)	31.3% (5)	6.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	6.3% (1)	3.75
Increase public awareness of winter weather hazards	25.0% (4)	12.5% (2)	12.5% (2)	25.0% (4)	18.8% (3)	6.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.19
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	25.0% (4)	12.5% (2)	25.0% (4)	12.5% (2)	12.5% (2)	0.0% (0)	12.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.25
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	37.5% (6)	25.0% (4)	25.0% (4)	0.0% (0)	6.3% (1)	6.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.31
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	12.5% (2)	18.8% (3)	12.5% (2)	18.8% (3)	18.8% (3)	6.3% (1)	12.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.81

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

31

Goal: Reduce Impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)

	High				Medium				Low		Rating Average
Install safety film on critical facilities to prevent shattering glass.	12.5% (2)	18.8% (3)	6.3% (1)	12.5% (2)	25.0% (4)	0.0% (0)	12.5% (2)	0.0% (0)	0.0% (0)	12.5% (2)	4.56
Encourage development and enforcement of wind resistant buildings and construction codes	6.3% (1)	12.5% (2)	18.8% (3)	12.5% (2)	25.0% (4)	0.0% (0)	18.8% (3)	0.0% (0)	0.0% (0)	6.3% (1)	4.56
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	18.8% (3)	12.5% (2)	18.8% (3)	12.5% (2)	12.5% (2)	6.3% (1)	18.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	3.81
<i>answered question</i>											
<i>skipped question</i>											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	1
<i>answered question</i>	1
<i>skipped question</i>	30

Goal: Reduce losses from Hazardous Material Incidents											
	High		Medium		Low		Rating Average				
Develop communication plan for hazardous material emergencies	26.7% (4)	13.3% (2)	26.7% (4)	13.3% (2)	20.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.87
Enhance information capability on types of hazardous materials traveling transportation routes	20.0% (3)	40.0% (6)	6.7% (1)	6.7% (1)	20.0% (3)	6.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.87
Provide hazardous material training to emergency responders	40.0% (6)	20.0% (3)	20.0% (3)	13.3% (2)	0.0% (0)	0.0% (0)	6.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.40
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	26.7% (4)	26.7% (4)	13.3% (2)	13.3% (2)	20.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.73
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
											Response Count
											1
answered question											1
skipped question											30

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High		Medium				Low				Rating Average
Identify and map areas of greatest landslide and avalanche potential	6.3% (1)	6.3% (1)	6.3% (1)	12.5% (2)	18.8% (3)	6.3% (1)	0.0% (0)	12.5% (2)	0.0% (0)	31.3% (5)	6.31
Create a landslide/avalanche technical committee	6.3% (1)	0.0% (0)	6.3% (1)	12.5% (2)	12.5% (2)	6.3% (1)	6.3% (1)	12.5% (2)	0.0% (0)	37.5% (6)	6.94
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	25.0% (4)	6.3% (1)	0.0% (0)	6.3% (1)	6.3% (1)	12.5% (2)	6.3% (1)	6.3% (1)	0.0% (0)	31.3% (5)	5.75
Reduce losses from communicable disease	18.8% (3)	18.8% (3)	25.0% (4)	12.5% (2)	12.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	6.3% (1)	6.3% (1)	3.63
Increase awareness of risks from communicable disease	25.0% (4)	6.3% (1)	25.0% (4)	12.5% (2)	18.8% (3)	0.0% (0)	0.0% (0)	0.0% (0)	6.3% (1)	6.3% (1)	3.75
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	0
<i>answered question</i>	0
<i>skipped question</i>	31

Please indicate how long it took you to complete the survey.		
	Response Percent	Response Count
5 minutes	0.0%	0
10 minutes	12.5%	2
15 minutes	56.3%	9
20 minutes	12.5%	2
30 minutes	18.8%	3
Greater than 30 minutes	0.0%	0
answered question		16
skipped question		15

District 4 On-Line Survey - Other Jurisdictions Completing Plan

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







Displaying 1 - 13 of 13 responses

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Comment Text		Response Date
 Find	1. GLENDIVE MEDICAL CENTER	Fri, 6/1/07 10:27 AM
 Find	2. City fire and EMS	Tue, 5/29/07 7:10 AM
 Find	3. City fire and EMS	Tue, 5/29/07 7:08 AM
 Find	4. Oil Field / Amateur Radio	Tue, 5/29/07 6:38 AM
 Find	5. City of Glendive council president	Sun, 5/27/07 5:42 PM
 Find	6. City	Fri, 5/25/07 10:39 AM
 Find	7. industry	Fri, 5/25/07 8:59 AM
 Find	8. private industry	Thu, 5/24/07 8:16 AM
 Find	9. BNSF Railway	Thu, 5/24/07 5:57 AM
 Find	10. City	Wed, 5/23/07 5:01 PM
 Find	11. non profit electric coop	Wed, 5/23/07 2:27 PM
 Find	12. City limits of Glendive	Wed, 5/23/07 2:08 PM
 Find	13. Private hospital	Wed, 5/23/07 1:57 PM
		50 responses per page

District 4 On-Line Survey - Suggested Improvements to Plan

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



Displaying 1 - 4 of 4 responses

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Comment Text		Response Date
 Find	1. Continue to work with local jurisdictions while updating the plan	Thu, 5/24/07 4:38 PM
 Find	2. Personally, I feel that lack of adequate all season roads in my county is a hazard. Not only does it cause accidents, but prohibits response in some cases. I feel this is a need in this community.	Thu, 5/24/07 9:03 AM
 Find	3. Attended the meeting in Custer County and appreciated the effort to update, confirm and ammend our plan	Thu, 5/24/07 7:03 AM
 Find	4. At this time I don't know of any improvements but if I come up with any I'll let our local DES know.	Wed, 5/23/07 2:27 PM
		10 responses per page

District 4 On-Line Survey - New Goals

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Displaying 1 - 1 of 1 responses

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Comment Text	Response Date
 Find 1. The implementation of a qualified communication manager	Tue, 5/29/07 6:45 AM
10 responses per page	

District 4 On-Line Survey - Other Goal 1 Mitigation Projects

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Comment Text		Response Date
 Find	1. In Garfield Co. it would be virtually impossible to enable every citizen to receive warning information. All communications except land line is hit and miss at best.	Tue, 6/19/07 1:27 PM
 Find	2. promote better communication with e-911 statewide and other communication efforts.	Thu, 5/24/07 9:55 AM
		10 responses per page

District 4 On-Line Survey - Other Flood Mitigation Projects

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Comment Text	Response Date
 Find 1. Provide flood analysis of existing dikes & levees State to provide matching funds for federal projects to mitigate existing deficiencies	Wed, 5/23/07 2:47 PM

10 responses per page

District 4 On-Line Survey - Other Hazardous Material Mitigation Projects

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Comment Text		Response Date
 Find	1. Establish more haz-mat teams throughout the state Provide minimal haz-mat equipment and training for the equipment to rural communities that have a threat.	Wed, 5/23/07 3:07 PM
		10 responses per page

District 4 On-Line Survey - Other Severe Summer Storm Mitigation Projects

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Comment Text		Response Date
 Find	1. State provide funding to improve public notification systems of impending storms.	Wed, 5/23/07 3:07 PM
		10 responses per page

District 4 On-Line Survey-Impact of Future Development on Communicable Disease Hazard

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









Displaying 1 - 12 of 12 responses

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Comment Text		Response Date
 Find	1. more people more risk	Mon, 7/2/07 4:52 PM
 Find	2. Future development in Garfield Co. has been in the past and continues to be at a standstill.	Tue, 6/19/07 1:20 PM
 Find	3. minor	Tue, 6/5/07 10:25 AM
 Find	4. Devastating	Tue, 5/29/07 6:43 AM
 Find	5. some	Sun, 5/27/07 5:49 PM
 Find	6. Small Community, Easier to contain	Fri, 5/25/07 8:38 AM
 Find	7. increase	Thu, 5/24/07 9:48 AM
 Find	8. could likely happen and could effect our community	Thu, 5/24/07 8:01 AM
 Find	9. Increase hazard	Thu, 5/24/07 7:24 AM
 Find	10. Higher Impact	Thu, 5/24/07 6:21 AM
 Find	11. If the population of Glendive were to grow, which would mean more people this may increase	Wed, 5/23/07 2:18 PM
 Find	12. hospital will be one of the first places that victims will seek help. The potential for facility and staff contamination is very great.	Wed, 5/23/07 2:04 PM
		25 responses per page

District 4 On-Line Survey-Impact of Future Development on Drought Hazard

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




Displaying 1 - 10 of 10 responses

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Comment Text		Response Date
 Find	1. more man caused fire	Mon, 7/2/07 4:52 PM
 Find	2. N/A	Tue, 6/5/07 10:25 AM
 Find	3. Serious	Tue, 5/29/07 6:43 AM
 Find	4. WEare in asemiared area	Sun, 5/27/07 5:49 PM
 Find	5. increase water demand	Fri, 5/25/07 10:44 AM
 Find	6. Water has always been a concern	Fri, 5/25/07 8:38 AM
 Find	7. we have been in a semi drought, the impact is more financial and inconvinience than hazardous	Thu, 5/24/07 8:01 AM
 Find	8. Increase hazard	Thu, 5/24/07 7:24 AM
 Find	9. Minor Impact	Thu, 5/24/07 6:21 AM
 Find	10. An increase in the amount of industry or population would strain even more the water resources available	Wed, 5/23/07 2:18 PM
10 responses per page		

District 4 On-Line Survey-Impact of Future Development on Earthquake Hazard

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
Displaying 1 - 7 of 7 responses

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Comment Text		Response Date
 Find	1. N/A	Tue, 6/5/07 10:25 AM
 Find	2. None	Tue, 5/29/07 6:43 AM
 Find	3. not to likly	Sun, 5/27/07 5:49 PM
 Find	4. Not Likely	Fri, 5/25/07 8:38 AM
 Find	5. not likely	Thu, 5/24/07 8:01 AM
 Find	6. No Impact	Thu, 5/24/07 6:21 AM
 Find	7. not a factor	Wed, 5/23/07 2:18 PM
10 responses per page		

District 4 On-Line Survey-Impact of Future Development on Flooding Hazard

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



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Comment Text		Response Date
 Find	1. higher population more difficult to evac	Mon, 7/2/07 4:52 PM
 Find	2. unknown	Tue, 6/5/07 10:25 AM
 Find	3. None	Tue, 5/29/07 6:43 AM
 Find	4. yellowstone ice jams	Sun, 5/27/07 5:49 PM
 Find	5. limiting development	Fri, 5/25/07 10:44 AM
 Find	6. Yellowstone river passes through town, Part of which is in the flood plain	Fri, 5/25/07 8:38 AM
 Find	7. Newcomers will need to learn where rivers/streams have flooded in the past	Thu, 5/24/07 4:40 PM
 Find	8. increase	Thu, 5/24/07 9:48 AM
 Find	9. Our community is split by the Yellowstone river flooding could be devastating to us	Thu, 5/24/07 8:01 AM
 Find	10. minor impact	Thu, 5/24/07 6:21 AM
 Find	11. If more bridges are installed across the Yellowstone river it would increase the existing problem we have with ice jams/flooding from the river	Wed, 5/23/07 2:18 PM
 Find	12. Miles City sits on confluence of Tongue river which has potential for flooding and or dam failure. History has shown the Yellowstone to flood during ice off.	Wed, 5/23/07 2:04 PM
25 responses per page		

District 4 On-Line Survey-Impact of Future Development on Hazardous Material Incidents

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

Displaying 1 - 10 of 10 responses

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Jump To: 1

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Comment Text		Response Date
 Find	1. higher population more difficult to evac	Mon, 7/2/07 4:52 PM
 Find	2. with continued oil activity the risk will increase	Tue, 6/5/07 10:25 AM
 Find	3. Enforcement agencies not trained, first responders not prepared	Tue, 5/29/07 6:43 AM
 Find	4. trains trucks spillage	Sun, 5/27/07 5:49 PM
 Find	5. increase hazard	Fri, 5/25/07 10:44 AM
 Find	6. Railroad runs through center of town, Interstate on the outskirts.	Fri, 5/25/07 8:38 AM
 Find	7. increase	Thu, 5/24/07 9:48 AM
 Find	8. I-94 and BNSF Railroad both pass thru our community, a hazardous materials release is very possible and could likely effect the entire population of our town	Thu, 5/24/07 8:01 AM
 Find	9. Higher ImpaCT	Thu, 5/24/07 6:21 AM
 Find	10. With a major BNSF rail facility and I-94 going through the city we already have a large risk from hazardous materials incidents	Wed, 5/23/07 2:18 PM

10 responses per page

District 4 On-Line Survey-Impact of Future Development on Landslide Hazard

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




Displaying 1 - 7 of 7 responses

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Comment Text		Response Date
 Find	1. N/A	Tue, 6/5/07 10:25 AM
 Find	2. None	Tue, 5/29/07 6:43 AM
 Find	3. large heave rain	Sun, 5/27/07 5:49 PM
 Find	4. minimal amount of property would be affected	Fri, 5/25/07 8:38 AM
 Find	5. not likely	Thu, 5/24/07 8:01 AM
 Find	6. No Impact	Thu, 5/24/07 6:21 AM
 Find	7. If future development were to extend even further into the adjoining badlands the potential for landslide into the built-up areas would be increased	Wed, 5/23/07 2:18 PM
10 responses per page		

District 4 On-Line Survey-Impact of Future Development on Severe Summer Weather Hazards

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
Displaying 1 - 10 of 10 responses

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Comment Text		Response Date
 Find	1. more population harder to help when needed	Mon, 7/2/07 4:52 PM
 Find	2. N/A	Tue, 6/5/07 10:25 AM
 Find	3. Not taken seriously	Tue, 5/29/07 6:43 AM
 Find	4. not being prepaired	Sun, 5/27/07 5:49 PM
 Find	5. increase hazard	Fri, 5/25/07 10:44 AM
 Find	6. So far we have been lucky. Some day wer are going to be hit by "The big one"	Fri, 5/25/07 8:38 AM
 Find	7. could very well happen	Thu, 5/24/07 8:01 AM
 Find	8. Minor Impact	Thu, 5/24/07 6:21 AM
 Find	9. Future development would increase the property/life loss during one of these events	Wed, 5/23/07 2:18 PM
 Find	10. Historical data supports distructive storms in the summer.	Wed, 5/23/07 2:04 PM

10 responses per page

District 4 On-Line Survey-Impact of Future Development on Terrorism Hazard

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




Displaying 1 - 8 of 8 responses

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Comment Text		Response Date
 Find	1. minor	Tue, 6/5/07 10:25 AM
 Find	2. Lack of training	Tue, 5/29/07 6:43 AM
 Find	3. need better communications	Sun, 5/27/07 5:49 PM
 Find	4. Always possible, even in a small town.	Fri, 5/25/07 8:38 AM
 Find	5. increase	Thu, 5/24/07 9:48 AM
 Find	6. Rail Road and a pipeline gasoline terminal so the threat is possible	Thu, 5/24/07 8:01 AM
 Find	7. No Impact	Thu, 5/24/07 6:21 AM
 Find	8. Depending on the type of future development would this item increase	Wed, 5/23/07 2:18 PM
		10 responses per page

District 4 On-Line Hazard-Impact of Future Development on Volcanic Eruption Hazard

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Comment Text		Response Date
 Find	1. N/A	Tue, 6/5/07 10:25 AM
 Find	2. None	Tue, 5/29/07 6:43 AM
 Find	3. Not Likely	Fri, 5/25/07 8:38 AM
 Find	4. not likely	Thu, 5/24/07 8:01 AM
 Find	5. No Impact	Thu, 5/24/07 6:21 AM
 Find	6. not a factor	Wed, 5/23/07 2:18 PM
10 responses per page		

District 4 On-Line Survey-Impact of Future Development on Wildfire Hazard

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







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Comment Text		Response Date
 Find	1. harder to evac	Mon, 7/2/07 4:52 PM
 Find	2. More activity - the greater risk	Tue, 6/5/07 10:25 AM
 Find	3. Not enough equipment	Tue, 5/29/07 6:43 AM
 Find	4. need more and newer eqwipment	Sun, 5/27/07 5:49 PM
 Find	5. increase hazard	Fri, 5/25/07 10:44 AM
 Find	6. Always possible with carelessness and the wind we have	Fri, 5/25/07 8:38 AM
 Find	7. Newcomers will need to learn how to protect their lives and homes until the fire department arrives	Thu, 5/24/07 4:40 PM
 Find	8. increase	Thu, 5/24/07 9:48 AM
 Find	9. Very likely to happen but the impact would not be that tramatic	Thu, 5/24/07 8:01 AM
 Find	10. No Impact	Thu, 5/24/07 6:21 AM
 Find	11. Future development would increase the urban-wildland interface problem	Wed, 5/23/07 2:18 PM
25 responses per page		

District 4 On-Line Survey-Impact of Future Development on Severe Winter Weather Hazard

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Comment Text		Response Date
 Find	1. harder to check on all population	Mon, 7/2/07 4:52 PM
 Find	2. N/A	Tue, 6/5/07 10:25 AM
 Find	3. Not properly prepared	Tue, 5/29/07 6:43 AM
 Find	4. better comunications	Sun, 5/27/07 5:49 PM
 Find	5. increase hazard potential	Fri, 5/25/07 10:44 AM
 Find	6. We have had bitter winters before, they will come again	Fri, 5/25/07 8:38 AM
 Find	7. increase impact	Thu, 5/24/07 9:48 AM
 Find	8. very likely, nned to be prepared	Thu, 5/24/07 8:01 AM
 Find	9. No Impact	Thu, 5/24/07 6:21 AM
 Find	10. Future development would effect more people than it alrady does	Wed, 5/23/07 2:18 PM
		10 responses per page

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Projects

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Carter County

High Priority

- Obtain 2 way radios for emergency personnel.
- Provide weather radios.
- Work with Mid Rivers to add cell towers within the County.
- Improve weather radio reception by installing booster repeaters.

Custer County

High Priority

- Install operating stations including computers, telephones, radio, and Internet or LAN, for all response agencies.
- Review existing mutual aid agreements ensure they meet current requirements.
- Execute new mutual aid agreements as needed.
- Offer training in county and/or the opportunity for city and county staff, emergency responders, and elected officials to attend initial and refresher training on preparing damage assessments.
- Inventory all communications systems in the county to determine coverage and/or dead spots.
- Update Emergency Operations Center telephone, cellular phone, and radio systems.
- Actively work with state and federal legislators to develop support for funding identified disaster services needs.
- Compile and maintain a list of Search and Rescue resources available in the county.

Fallon County

High Priority

- Establish back-up Emergency Operations Center in Plevna.

Garfield County

High Priority

- Purchase, install and train users on the operation of NOAA Weather radios.
- Cover windows in critical and special needs facilities with a safety film that prevents the shattering of glass during high winds, tornadoes, earthquakes and other events.

Medium Priority

- Construct a community shelter.
- Explore the best alternative for heating and powering the county courthouse and health center during a power outage.

McCone County

High Priority

- Work to expand acquisition and use of NOAA weather radios, focusing first on critical facilities and vulnerable populations.
- Use NOAA radio system for emergency disaster announcements of any type.

Powder River County

Medium Priority

- Construct a community shelter in Broadus equipped with a generator. Test the facility with drills and disaster exercises.

Prairie County

High Priority

- Develop EOC/Disaster Shelter at the new fire facility in Terry with its own water supply and back-up power.

Medium Priority

- Develop and practice evacuation plans. (Note that the Red Cross has evacuation facilities in Miles City and Glendive if Terry had to be evacuated.)
- Consider the continuity of important records and assess need to address problems associated with interruption of access to records.
- Conduct training exercises.
- Work with critical facilities and public building occupants to ensure each has working NOAA weather radios.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Prairie County

Medium Priority

- Inventory various equipment needed for emergencies- e.g., back-up generators, etc.

Richland County

High Priority

- Ensure that there is adequate power and back-up in the towns of Sidney and Fairview.
- Identify and develop a location that could be used as an Emergency Operations Center in Fairview.
- Ensure that critical facilities have operating weather radios.

Medium Priority

- Expand use of weather radios by the general public.
- Ensure that Fairview has a sustainable water supply by fencing the town's water supply tank.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Custer County

High Priority

- Complete the coverage of the Miles City area with warning sirens.

Garfield County

Medium Priority

- Explore the integration and purchase a reverse 911 system.

Prairie County

High Priority

- Upgrade the siren system and test on a regular basis. Implement local warning plan for an updated siren system.
- Enhance/develop warning response systems.

Richland County

High Priority

- Assess back-up power for communication facilities to ensure that warning systems and communications work during power outages.
- Provide information on warning systems- what they mean and what to do.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

McCone County

High Priority

- Provide public education on need for and how to use weather radios.
- Develop mechanisms to inform new residents of disaster response systems.
- Provide public education on how to prepare for various types of disasters.

Medium Priority

- Consider county website to disseminate emergency/disaster information.

Prairie County

High Priority

- Provide and distribute public education on various disasters, how to prepare and respond.

Richland County

High Priority

- Educate the public on how to get information during a disaster.

Medium Priority

- Provide information on various types of disasters and how to prepare for them.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Custer County

High Priority

- Develop and implement actions to address the communications problems identified in the plan.
- Prepare a plan for, or address in the Emergency Operations Plan, continuity of government during flood, drought, severe winter weather, wind/hail and lightning events, and train derailments.

Prairie County

Medium Priority

- Assess emergency telecommunications capabilities- cell phones and 2-way radio coverage.
- Conduct table-top and field test exercises for various disaster scenarios.
- Improve the ability to respond to disasters of all types by sharing issues with other counties in Montana.

Richland County

High Priority

- Identify and implement the best mechanisms to reduce impacts to high-risk populations when they are stranded in their homes or when they are without power critical for health maintenance.

GOAL 2 - Increase State's capability to provide and assist locals with mitigation opportunities.

OBJECTIVE 2.2 - Promote mitigation through supportive legislation and funding.

Garfield County

High Priority

- Adopt a growth policy that addresses hazards and encourages growth in low hazard areas.

Medium Priority

- Require subdivisions meet minimum requirements to improve their disaster resistance.

Powder River County

High Priority

- Revise the county growth policy to address other hazards besides wildfire and encourage growth in low hazard areas. Gather input and support the needs of first responders and emergency service providers.
- Develop subdivision regulations that require developments to meet minimum standards to improve their disaster resistance to a multitude of hazards.

Prairie County

Medium Priority

- Encourage County Commissioners to add disaster mitigation/preparedness issues to the agendas at Montana Association of Counties (MACO) meetings to identify what other counties are doing and opportunities for inter-governmental agreements, etc.

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Carter County

Medium Priority

- Implement the Carter County Fire Mitigation Plan.

Dawson County

High Priority

- Train new leadership to meet the identified needs. Determine best method to get training accomplished and implemented.
- Recruit new firefighters as needs determine.
- Fire department leadership will determine their current and future needs for firefighters and leadership positions.
- Identify areas of specialized training, such as fighting fire in the oil fields.

Medium Priority

- Have Fire departments identify private, state and federal properties at risk.
- Fire departments apply for funding of these identified needed new or improved water sources.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Dawson County

Medium Priority

- Look for funding opportunities to provide wildland firefighting equipment for the City of Glendive Fire Dept.
- Convene fire department personnel with other county personnel such as the road crew, local farmers/ranchers and the DES Coordinator to identify and improve existing water sources and establish new key locations for water sources.
- Have firefighters identify areas in the county that need to have new or improved reliable water sources.
- Look for funding sources for training.
- Work with existing firefighters to find out what their training needs are and what specific interest they have.
- Assign an individual or task force to look for funding opportunities for these needs.

Fallon County

High Priority

- Request on-site training in use of NFIRS.
- Work closely with the oil companies to train and equip individuals in the specialized area of response to hydrocarbon incidents.
- In addition to basic wildfire fire fighting courses, host a course in cooperation with oil producers on responding to hydrocarbon incidents.
- Improve SCBA discipline and training for firefighters.
- Develop an annual recruitment plan for each department that includes some or all of the following: coverage in the local media, handout materials, tours, visits to schools and mentoring.
- Maintain currency and skills in fighting timber fires by working with adjacent counties on mutual aid calls and with the DNRC to create opportunities for the Fallon County fire fighters to receive assignments to other fires outside the county.
- Purchase and install in-ground water storage tanks countywide. Cover areas without an option for dry hydrants.
- Proceed with installation of dry hydrants in previously-identified locations.

Medium Priority

- Equip wildland fire apparatus with wildland monitor guns.
- Switch all equipment to DNRC standards.
- Continue to maintain water resources in remote locations.
- Select final location for the Baker Fire Department and construct new facility.
- Retrieve and analyze data at the end of each fire season.
- Establish an all-hazards training facility to train on oil/gas fires, wildfires, structure fires, vehicle fires, hazmat fires and spills, and rescues. Obtain assistance from oil companies to equip and build the facility.

Low Priority

- Develop community and county recognition programs for length of service and special acts.

Garfield County

High Priority

- Purchase portable reservoirs that can be taken to the wildfires.

McCone County

High Priority

- Look into getting some training for fighting fire started by methamphetamine labs.
- Continue training opportunities for firefighters.

Prairie County

High Priority

- Expand information about the need to recruit additional firefighters.
- Continue training opportunities for fire fighters.
- Increase number of persons trained and qualified as Type 3 and Type 4 Incident Commanders in the county.
- Establish needed water sources in key areas.
- Look into providing training on meth lab ignited fires.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Richland County

High Priority

- Continue training opportunities for firefighters.
- Increase number of persons trained and qualified as Type 3 and Type 4 Incident Commanders in Richland County.

Wibaux County

High Priority

- Conduct a training session for firefighters on the hazards of dealing with methamphetamine started fires.

Medium Priority

- Look at opportunities to place fire equipment in other strategic locations within the county.
- Initiate a campaign to have fire extinguishers installed on agricultural equipment such as balers and combines.
- Coordinate with oil field production companies to see if placing fire equipment near the oil fields in the Pine Unit would improve response times.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Dawson County

High Priority

- Plan and install fire breaks around farmstead/ranch improvements and crops. Utilize the local Farm Services Agency personnel to assist in getting this information out to landowners at risk.

Medium Priority

- Request that the BLM and DNRC plan and implement fuels reduction projects in key locations, especially near Wildland Urban Interface boundaries.

Fallon County

Medium Priority

- Complete a demonstration project to create defensible space between CRP land and/or timber and a rural residence. Conduct a tour of the project in cooperation with the Fallon County Conservation District following completion.

Garfield County

Medium Priority

- Encourage and provide funding for homeowners to create defensible space from wildfires around homes and outbuildings using FireWise principles.
- Create and maintain fuel breaks in wildfire hazard areas, particularly around homes and communities.

McCone County

High Priority

- Provide information to CRP landowners to reduce risk to buildings.

Medium Priority

- Encourage BLM/DNRC to plan and implement fuels reduction projects.

Powder River County

Medium Priority

- Encourage and provide funding for homeowners to create defensible space from wildfires around their homes and outbuildings using Firewise principles.

Prairie County

Medium Priority

- Provide information (via FSA and others) to CRP landowners on projects to reduce risk of fire to improvements and buildings.
- Develop a demonstration project.
- Encourage firebreaks around CRP fields and other high fuel areas, such as timber, to protect farmsteads. Re-establish firebreaks on state and federal lands.
- Request that the BLM/DNRC plan and implement strategic fuels reduction projects, especially near Wildland Urban Interface boundaries and continue the ongoing project in the Cedar Creek area.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Richland County

High Priority

- Place firebreaks around CRP fields and residential yard areas to protect farmsteads.

Medium Priority

- Work with the BLM/DNRC to plan and implement strategic fuels reduction projects, especially near Wildland Urban Interface boundaries.
- Provide information (via FSA and others) to CRP landowners on projects to reduce risk of fire to improvements and buildings.

Wibaux County

High Priority

- FSA make available current guidelines and examples that reduce risk of fire to improvements and buildings.

Medium Priority

- Look at opportunities to do fuels reduction projects and continue the work on the projects in the Cedar Creek area.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Carter County

Medium Priority

- Provide education on defensible space to those living within forested areas.

Dawson County

High Priority

- Develop a demonstration project with a farmer or rancher and promote the defensible space with nearby CRP lands by on-site visits.

Medium Priority

- Place fire danger sign in key road locations to alert locals and non-locals of the fire danger. Suggest one sign to be placed in front of the West Glendive Fire Dept. and one in front of the Richey Fire Dept.
- The Fire Department sponsor a Defensible Space exhibit at the County Fair.
- Utilize the "Living with Fire, A Guide for the Homeowner", a Northern Rockies Fire Prevention Team publication to assist property owners at risk. Fire Dept. personnel will identify and work with these property owners.
- Raise the awareness of residents building new homes to consider defensible space, fire resistant building materials and emergency vehicle access to their property.
- In high fire danger years, especially during the hunting season, develop a fire danger awareness poster directed at sportsmen that will be placed in motels, restaurants, sporting goods stores, bars and service stations.

Fallon County

Medium Priority

- Provide an opportunity to recharge fire extinguishers and combine this with education on requirements for farm equipment and other vehicles.
- Place fire danger signs in Plevna and Baker.

McCone County

High Priority

- Place fire danger sign in Circle.
- Sponsor fire preparedness booth at county fair.
- In high fire danger years prepare a poster for hunting season aimed at sportsmen.

Medium Priority

- Utilize "Living with Fire" publication.

Low Priority

- Publicize the Fire Department's willingness to come to property to give advice on fire danger reduction.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Powder River County

High Priority

- Coordinate with the Montana Department of Natural Resources and Conservation, the U.S. Forest Service, local and area businesses, and schools on wildfire prevention and education opportunities.

Prairie County

Low Priority

- Utilize the "Living with Fire, A Guide for the Homeowner", a Northern Rockies Fire Prevention Team publication to assist property owners at risk. Fire department personnel to identify and work with these property owners.
- In high danger fire years in the hunting season, develop a poster aimed at sportsmen to put in motels, restaurants, bars, sporting good stores, etc.
- Public education campaigns (possibly sponsored by local major businesses).
- Place fire danger indicator signs at entrances to county along major highways.

Richland County

Medium Priority

- Develop a demonstration project for CRP.
- Place fire danger indicator signs along major highways (in areas with more traffic, like near towns).
- In high danger fire years in the hunting season, develop a poster aimed at sportsmen that can be put in motels, restaurants, bars, sporting good stores, schools, etc.
- Public education campaigns.
- Utilize the "Living with Fire, A Guide for the Homeowner", a Northern Rockies Fire Prevention Team publication to assist property owners at risk.

Wibaux County

High Priority

- Have the Fire Department publicize their willingness for firefighters to come to a farm, ranch, business, home and offer suggested methods of reducing fire danger around their properties.

Medium Priority

- Work with the Montana Dept. of Fish, Wildlife and Parks to have information posted at Block Management sign-up locations.
- Place a fire danger rating sign in the town of Wibaux.
- Fire Department sponsor a booth at the County Fair to talk about defensible space for landowners.
- Share information with landowners contained in "Living with Fire, A Guide for the Homeowner" Northern Rockies Coordinating Group publication.

Low Priority

- Develop information (such as posters, flyers, placemats, and other) aimed at sportsmen to put in motels, restaurants, bars, etc.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Carter County

Medium Priority

- Maintain and improve access to public and private forest lands.

Dawson County

Medium Priority

- Identify areas where there are fire equipment access issues that can be worked on to improve effectiveness of fire responses.
- Work with the county roads department to identify and improve poor road access into critical areas.

Fallon County

High Priority

- Contact oil companies with pipelines under Baker Lake to develop training and/or a response plan in the event a pipeline ruptures under the water.
- Obtain navigation systems for each ambulance to ensure shortest response time.
- Implement E-911 reverse call-up function. Raise public awareness about this capability.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Fallon County

High Priority

- Obtain handheld GPS units for departments' vehicles.

Medium Priority

- Assign incident reporting to one individual in each department.

Prairie County

High Priority

- Establish Standard Operating Procedures that facilitate the efficient dispatch of trucks and equipment to fires.

OBJECTIVE 3.6 - Establish mapping or record keeping practices to support fuel management strategies.

Dawson County

Medium Priority

- Ask Farm Services Agency to share information with CRP landowners about new changes (2002) in CRP rules for fire protection.

Fallon County

Medium Priority

- Develop GIS capability and fire/fuel map layers.

GOAL 4 - Minimize economic impacts of drought.

OBJECTIVE 4.1 - Identify water retention projects that could lessen the effects of drought.

McCone County

High Priority

- Encourage producers to continue to use and expand methods to minimize moisture loss.
- Address leaky water supply lines in town of Circle.

OBJECTIVE 4.2 - Provide education and incentives for minimizing the effects of drought.

Dawson County

Medium Priority

- Provide tools and training for producers on drought options related to cropping and livestock operations.
- Provide water use and conservation education targeted towards residences covering such things as landscaping and lawn watering.

McCone County

Low Priority

- Water conservation education.

Prairie County

High Priority

- Provide education on water conservation measures for residents of the county and the town of Terry.

Richland County

High Priority

- Provide education on water conservation measures for urban residents as well as agricultural producers.

Wibaux County

High Priority

- To the extent possible, fill vacancies in department, maintain equipment, administer pack test, and provide wildland fire training to volunteers.

Low Priority

- Continue to offer periodic seminars on drought management crop and livestock options.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 4 - Minimize economic impacts of drought.

OBJECTIVE 4.3 - Improve drought monitoring and assessments.

Custer County

Medium Priority

- Purchase drought monitoring equipment.

Low Priority

- Cooperate with all agencies that have an interest in drought to put on workshops and provide educational opportunities.
- Purchase soil moisture monitoring equipment.

Dawson County

High Priority

- Maintain wildfire preparedness.

Medium Priority

- Consider large-scale spray operation for insect infestations as needed.

Low Priority

- Support continued flexibility on use of CRP lands to reduce hazard fuels and provide economic relief to drought-affected producers.

Fallon County

Medium Priority

- Install remote drought monitoring equipment to gather data and document situation.

Prairie County

High Priority

- Have county actively participate in the Governor's Drought Advisory Committee.

Medium Priority

- Encourage and support the Farm Services Agency, Buffalo Rapids Irrigation Project, and others to continue to increase efficiency of water distribution.
- Coordinate with major water suppliers, water managers and users in the county to share information and plans for drought.

Richland County

High Priority

- Develop baseline information on water supply and water use in Richland County.

Medium Priority

- Encourage coordination among water suppliers, water managers and water users in the county to share information and plans for drought.

Low Priority

- Support continued flexibility on use of CRP lands to reduce hazard fuels and provide economic relief to drought-affected producers.

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Wibaux County

High Priority

- Develop warning system utilizing existing sirens.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Fallon County

High Priority

- Enforce existing floodplain regulations in Baker area.

Garfield County

Medium Priority

- Approve an ordinance adopting floodplain mapping and establish regulations for flood hazard areas.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Powder River County

High Priority

- Approve and enforce an ordinance adopting floodplain mapping and establishing regulations for flood hazard areas in Powder River County. Educate residents on availability and importance of flood insurance.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Carter County

Medium Priority

- Improve drainage within Ekalaka by installing larger culverts.

Custer County

High Priority

- Based upon the surface water runoff model for Miles City, determine what can be done to address historic and recurring drainage problem locations such as the underpass.
- Develop projects to address identified infrastructure vulnerabilities.
- Develop a surface water runoff model for Miles City.
- Conduct a thorough evaluation of assets by specific location vulnerable to riverine and flash flooding including storm sewer system, roads, bridges, culverts, critical facilities, and other infrastructure.
- Clean out storm water drainage system to enhance performance during heavy precipitation events.

Dawson County

High Priority

- Select an alternative and move forward with resolving the issue of structures and infrastructure located in the 100-year floodplain in Glendive.
- Design and install gauges at Cabin Creek by Gibb's Ranch and the Interstate bridge on the north side of Glendive to provide information for flood warnings.

Medium Priority

- Improve Road 130 (Marsh Rd) to an all-weather road, able to carry traffic in the event of Yellowstone River flooding in the interstate corridor.
- Stabilize the river bank to protect bridge pilings by the Black railroad bridge.
- Install floodgates at Cain's Coulee crossing.

Fallon County

High Priority

- Develop a drainage plan for the city of Baker.
- Develop a plan for maintenance of the Baker Lake spillway.
- Develop a joint written floodplain policy for the city and county to ensure consistent handling of floodplain activities.
- Replace City Shop bridge.
- Monitor and provide input to joint effort with City of Baker and Montana Dept. of Transportation on Highway 7 south storm water system project.

Garfield County

Medium Priority

- Target roads vulnerable to wet weather for relocation, elevation and surface improvements, and upgrade culverts and bridges.

McCone County

High Priority

- Assess road capacity to handle flood events and mitigate as necessary.

Powder River County

High Priority

- Install sewer backflow prevention valves on new residential sewer connections in the town of Broadus.
- Increase the capacity of the Broadus water and sewer infrastructure to handle floodwaters and evaluate the potential for sewer lagoon overflows.
- Evaluate bridges and culverts throughout the county for flood capacities and replace hazardous structures in flood prone areas.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Powder River County

High Priority

- Install sewer backflow prevention valves on critical and special needs facilities.

Medium Priority

- Lower the Powder River Clinic parking lot to keep runoff from flowing into the Clinic.
- Implement flood control measures in the Crane Acres subdivision to minimize flood problems.
- Remove the old bridge abutments and debris from the Powder River.

Prairie County

High Priority

- Develop projects to improve storm drainage in the town of Terry.

Medium Priority

- Coordinate with the Conservation District and others already working on Yellowstone River issues.

Richland County

High Priority

- Examine options for flood-proofing the sewage lagoons in Sidney and Savage, which could be threatened by Yellowstone River flooding.
- Develop a regular monitoring and protocol for ensuring that Lone Tree Creek drainage can free-flow.
- Identify the risks of the sewer line across Lone Tree Creek and develop appropriate mitigation.
- Continue to assess standards for rebuilding roads, bridges, etc. in areas that experience multiple flood events.
- Work with Montana Department of Transportation to identify flood-damage risk and mitigation as necessary for the Highway 16 bridge across Lone Tree Creek.
- Work with the railroad to develop the necessary drainage improvements along their right-of-way.

Medium Priority

- Assess the need to enlarge the storm drain pipe size.
- Assess methods to reduce ice from forming and creating jams for storm water flow.
- Continue to investigate potential for flood controls on Lone Tree Creek.

Wibaux County

High Priority

- Back-up irreplaceable town and county records off-site.

Medium Priority

- Request a study by the Montana Dept. of Transportation on redesigning and replacing the bridge on Highway 7 south of Wibaux to reduce constriction of the floodway.
- Determine a location and stockpile a small amount of sand and sand bags. Let all responders know where this location is.

OBJECTIVE 5.4 - Increase the public awareness of flood mitigation.

Custer County

High Priority

- Use the radio and other media to run informational spots and provide printed materials on what to do before and during a flood.

Dawson County

Medium Priority

- Place seasonal reminders in the media about flash floods annually.

Fallon County

High Priority

- Make information about floodplain requirements available to the public.

Wibaux County

High Priority

- Educate citizens about the warning system and what to do in the event of a flood of Beaver Creek.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Custer County

High Priority

- Determine ways to reduce flood insurance premiums.

McCone County

Low Priority

- Examine county participation in national flood insurance program.

Prairie County

High Priority

- Initiate steps to enter into the National Flood Insurance Program, including the development of Flood Insurance Rate maps.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Custer County

High Priority

- Ensure the long-term integrity of the Miles City dike.

Fallon County

High Priority

- Install remote monitoring system for Baker Lake dam.

McCone County

Low Priority

- Identify alert procedure for Fort Peck Dam failure and identify any potential improvements.
- Examine methods to reduce dam failure, including public education.

Richland County

Medium Priority

- Assist with identifying funding options for dam owners to make improvements as needed for downstream safety.
- Facilitate information from Montana DNRC and other sources to area dam owners about dam maintenance and responsibilities.

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Carter County

Medium Priority

- Construct all-weather storage building for equipment.

Custer County

High Priority

- Have county dispatch broadcast severe weather warnings to all emergency service entities as severe weather situations develop.

Medium Priority

- Put on weather spotter training in the county.
- Identify and mark snow routes in Miles City.
- Publish the county road snow removal policy and priorities annually in the fall of each year.

Low Priority

- Purchase weather radios for all remaining public buildings.

Dawson County

High Priority

- Place a NOAA weather radio in every critical facility, public building, school and day care center in the county.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Dawson County

Medium Priority

- Set up and test existing generator so that the school could be powered in the event of a winter storm that causes loss of power in the town of Richey.
- Improve coverage, timeliness and accuracy of weather information across the county.

Fallon County

High Priority

- Ensure adequate power for Plevna in the event of a winter storm power outage.
- Obtain a back-up power source for Plevna that can power both the firehall and well/water system.

Garfield County

High Priority

- Work with McCone Electric Cooperative to strengthen or bury electric distribution lines or other measures to prevent winter power outages.
- Investigate becoming a StormReady Community.

Powder River County

High Priority

- Encourage the Montana Dept. of Transportation to revise guidelines for passing areas near hills and curves and the placement of guard rails, and changing mile markers to avoid confusion for emergency responders.

Medium Priority

- Widen and improve Cemetery Road due to high volumes of truck traffic.
- Purchase and install gates and related signage to physically close off highways during emergencies and coordinate with neighboring counties on road closures.

Prairie County

High Priority

- Work with the Montana Dept. of Transportation and law enforcement to develop policies for closing the interstate at locations that divert storm-bound travelers to Glendive or Miles City, rather than Terry.
- Work to enforce road closures and notices sooner so that there are fewer weather related accidents and travelers stranded on the roadways.

Richland County

High Priority

- Identify and mark snow routes and schedules and publicize the information.

Medium Priority

- Investigate options for reporting weather conditions aimed at travelers throughout the county.

Wibaux County

High Priority

- Obtain a weather service repeater for Wibaux.
- Obtain generator(s) to provide back-up power to run the water well pumps, power the school, firehall and courthouse.

Medium Priority

- Identify shelter locations and develop shelter agreements with the Red Cross.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Carter County

Medium Priority

- Provide education for the public on winter survival.

Custer County

Medium Priority

- Work with Mid-Rivers and other media to broadcast weather warning information.
- Make the public aware of sources they can access directly, and disseminate existing current and pending weather information such as the MDOT information, information from NOAA, and 511.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Custer County

Medium Priority

- Print documents with information about winter survival.
- Provide winter survival information to caregivers.
- Utilize radio and other media to run informational spots on how to stay safe during severe winter weather.

Dawson County

Low Priority

- Provide brochures/information on how to cope with severe weather and weather information numbers.
- Conduct winter safety/survival workshops in local communities.

Wibaux County

Low Priority

- Educate citizens about how to prepare for a winter storm and what to do during a winter storm.

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.1 - Increase community capabilities to mitigate summer weather hazards.

Custer County

Low Priority

- Purchase weather radios for all remaining public buildings.

Dawson County

Medium Priority

- Address the hazard associated with tin blowing off the unused grain elevator in Richey.

Fallon County

High Priority

- Request more advanced technology to provide more timely and accurate weather coverage of the county.

Medium Priority

- Install a siren in Plevna.
- Determine location and install additional siren(s) in Baker.

Low Priority

- Purchase and distribute additional weather radios.

OBJECTIVE 7.2 - Increase public awareness of ways to mitigate summer weather hazards.

Carter County

Medium Priority

- Provide education for extreme summer storms.

Custer County

High Priority

- Have county dispatch broadcast severe weather warnings to all emergency service entities as severe weather situations develop.

Medium Priority

- Put on weather spotter training in the county.
- Work with Mid-Rivers and other media to broadcast weather warning information.

Dawson County

Medium Priority

- Educate residents engaged in sports, outdoor recreation, and outdoor occupations on what to do in lightning, wind and severe summer weather events.

Fallon County

Medium Priority

- Offer a session for school children and adults on recognizing severe weather and behaving safely in severe weather.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.2 - Increase public awareness of ways to mitigate summer weather hazards.

Wibaux County

High Priority

- Educate the public about the siren warning system.

Low Priority

- Partner with insurance companies to offer information on building materials and techniques for wind-resistant new construction.
- Educate the public about what to do during an extreme wind event.

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Custer County

Low Priority

- Prepare contingency plans for a derailment or hazmat spill.
- Cooperate with Burlington Northern Santa Fe on training opportunities for all emergency responders on railroad incidents.

Dawson County

High Priority

- Identify and offer hazmat training to all first responders.

Medium Priority

- Educate residents about what to do in the event of a hazardous material spill and make shelter-in-place brochures available to residents.
- Request a list of the top 25 hazardous materials transported through the county on the railroad from BNSF.
- Develop an evacuation/warning plan for Richey in the event of an anhydrous ammonia leak or other hazmat spill or release. Include use of siren system.

McCone County

High Priority

- Acquire Hazmat spill kits and continue to ensure staff training in use of the kits.

Wibaux County

High Priority

- Request a list of the top 25 hazardous materials being transported through the county by rail from BNSF.
- Develop an evacuation plan for the town of Wibaux.

Medium Priority

- Educate residents about what to do in the event of a hazardous material spill or leak.
- Continue to provide hazardous material incident training for responders.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Dawson County

High Priority

- Secure the Harvest States anhydrous ammonia plant in Richey to prevent accidental or unauthorized access.
- Look into a regulatory mechanism for managing parking and transport of vehicles carrying hazardous materials through Richey.
- Fence the Cenex anhydrous ammonia tank farm in the Glendive area.

Medium Priority

- Map all hazardous material locations in the county and distribute maps to first responders.

Garfield County

Medium Priority

- Survey the number and types of hazardous materials passing through Garfield County and update risk assessment.

LOCAL MITIGATION PROJECTS

DES DISTRICT 4

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Powder River County

High Priority

- Purchase and install concrete barriers to protect businesses and other facilities from intentional or accidental car crashes.

Richland County

High Priority

- Identify an alternative truck bypass route for Sidney.

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

McCone County

High Priority

- Assess need for and extent of a mosquito control district.

Prairie County

High Priority

- Examine the need to expand the 1 mile mosquito control area for West Nile Virus. Consider need for a mosquito control area around Fallon.

GOAL 11 - Encourage mitigation of potentially devastating but historically less frequent hazards.

OBJECTIVE 11.1 - Prevent losses from acts of terrorism, violence and civil unrest.

Powder River County

High Priority

- Increase security measures at key water and electric infrastructure locations.
- Restrict access to 911 dispatch work areas and install bulletproof glass in the dispatch window.

Medium Priority

- Investigate and implement reasonable security measures for the schools.
- Install security cameras in the County Courtroom.
- Install a panic alarm in the County Commissioners' Office.



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

APPENDIX F

DISTRICT 5 DOCUMENTATION

Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Projects

SOUTH-CENTRAL MONTANA JURISDICTIONS

Big Horn County
Carbon County
Crow Reservation
Golden Valley County
Musselshell County
Northern Cheyenne Reservation
Rosebud County
Stillwater County
Treasure County
Wheatland County
Yellowstone County

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/27/07

LOCATION: Billings - District 5

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digrindakis	Tetra Tech	224	daphne.digrindakis@tetra.tech.com
JAMES FULLER	ARRL MONTANA SECTION EMERGENCY COMM	15	MTAR@ARRL.NET
Tim KRAFT	Yellowstone Co. DES		jkraft@co.yellowstone.mt.gov
Linda Cheng	Yellowstone Co DES		loberg@co.yellowstone.mt.gov
Charlie Hanson	MT DES	4	desdist5e@mt.net
KENT Atwood	MT DES	224	kentwood@mt.gov
Dianne Lehm	Big Sky EDA		lehmd@bigskyeda.org
Wyneth Friday	City-County Planning Dept.	0-5	Friday.WC@bigskymt.us
Annette Cabrera	Yellowstone County GIS Mgr	-	acabrera@co.yellowstone.mt.gov
Eel Aulser	Big Horn DES	100	eaalser@co.bighorn.mt.gov
Tanette Luppen	YC GIS		jiluppen@co.yellowstone.mt.gov
Jeff Gates	Musselshell County DES	100	mgates@midwesterns.com

Meeting State Time: 12:35

Meeting End Time: 2:50

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/27/07

LOCATION: Bellings District S

[illegible]

Meeting State Time: 12:35

Meeting End Time: 2:50

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Tuesday, March 27, 2007

Time: 12:34 pm – 2:46 pm

Place: Billings, Montana

Meeting Attendance:

James Fuller, ARRL Montana Section Emergency Coordinator

Jim Kraft, Yellowstone County DES

Linda Oberg, Yellowstone County DES

Charlie Hansen, MT DES

Dianne Lehm, Big Sky EDA

Wyeth Friday, Billings City/County Planning Department

Annette Cabrera, Yellowstone County GIS Manager

Ed Auker, Big Horn County DES

Janelle Luppen, Yellowstone County GIS

Jeff Gates, Musselshell County DES

Bill Michaelis, Yellowstone County Sheriff Lieutenant

Ken Mesch, Stillwater County DES

John Fleming, Yellowstone County Sheriff

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 5

Meeting Discussion on Hazards Affecting District 5

Possible addition of Pandemic Disease hazard. Currently, the Department of Public Health and Human Services is the lead agency and they would bring in or involve the Centers for Disease Control in any pandemic event.

Counties agreed that the top three hazards for the district were as follows: 1. Wildfire, 2. Flooding, and 3. Drought.

ASSESSMENT OF HAZARDS – DISTRICT 5

Drought

Wheatland – Change Low to High

Golden Valley – Change Low to High

Musselshell – Change Low to High

Stillwater – High

Yellowstone – Change Medium to High

Treasure – Change No Approved Plan to High

Rosebud – Change No Approved Plan to High

Carbon – Change Low to High

Big Horn – High

Crow Reservation – High

Northern Cheyenne Reservation – Change No Approved Plan to High

Yellowstone County noted that they originally rated drought risk as medium because some of the county is urban and the rest is agricultural, most in the form of farmland in the valley. If a small percent is agricultural, should the County upgrade to high? Also, should the Yellowstone River, a primary source of county water, be considered?

Discussion concluded that Musselshell County and all other counties in the district should be upgraded to high risk for drought. It was noted that a few years ago, all 56 counties in Montana were declared drought disasters so the State Goal should probably be upgraded in priority. Additionally, drought and fire are directly interconnected and more firefighting dry hydrants and retention ponds, etc. are needed.

Earthquake

Wheatland – Low

Golden Valley – Low

Musselshell – Low

Stillwater – Low

Yellowstone – Low

Treasure – No Approved Plan

Rosebud – No Approved Plan

Carbon – Low

Big Horn – Medium

Crow Reservation – Low

Northern Cheyenne Reservation - No Approved Plan

Big Horn County ranked earthquake risk as medium due to the extreme flood inundation hazard from Yellow Tail Dam. The County felt strongly that even though flood inundation is a low probability event, the risk is still high. The County asked if there is a state strategy that could mitigate this hazard; the response was no but it was suggested that better evacuation plans might help.

Flood

Wheatland – High

Golden Valley – High

Musselshell – High

Stillwater – Medium

Yellowstone – High

Treasure – No Approved Plan

Rosebud – No Approved Plan

Carbon – Low

Big Horn – Medium

Crow Reservation – Medium

Northern Cheyenne Reservation - No Approved Plan

Yellowstone County had a flood event about three years ago and would have updated this risk if possible. It was noted that the State Plan is required to annually review and local shifts could be incorporated at the annual update. Yellowstone County also has concerns about possible inundation by dam failure at Cooney Reservoir. County participants wondered why inundation maps are not reflected on floodplain maps. Additionally, the County discussed the problem with tree falls and debris ending up in the Yellowstone River and creating ice jam dams and flooding. Participants concluded that local debris removal was the key and suggested that Americorp kids may be hired for the job.

Big Horn County has ongoing ice jam flooding problems and may pursue sewage lagoon problems on the Crow Reservation.

Stillwater County is concerned about Mystic Lake Dam which is owned by PPL. There is an evacuation plan in place that makes power plant personnel responsible for notifying the public. The counties expressed doubt that such a plan is feasible as power plant personnel would be the first to get flooded and evacuate even though the water would be slow moving. Participants asked if the State could assist the County in obtaining an automated early warning system. Additionally, the County has asked DNRC about a dam safety program but the agency has not responded yet. It was noted that Libby, MT has an old project impact dam warning system.

Hazardous Material Incident

Wheatland – Low

Golden Valley – Medium

Musselshell – Medium

Stillwater – Change Medium to High

Yellowstone – High

Treasure – No Approved Plan

Rosebud – No Approved Plan

Carbon – Low

Big Horn – Medium

Crow Reservation – High

Northern Cheyenne Reservation - No Approved Plan

The Crow Reservation and Yellowstone County are rated as high risk due to the presence of pipelines, interstate corridors and railroad routes.

Stillwater County noted that their risk should be upgraded to high as the county contains mining operations and interstate and railroad transportation corridors.

Landslide

Wheatland – Not Assessed

Golden Valley – Not Assessed

Musselshell – Not Assessed

Stillwater – Low
Yellowstone – Low
Treasure – No Approved Plan
Rosebud – No Approved Plan
Carbon – Low
Big Horn – No Approved Plan (map error- should be Medium)
Crow Reservation – Medium
Northern Cheyenne Reservation - No Approved Plan

The Crow Reservation is rated as medium risk because of slippage areas on roads and risk at Yellowtail Dam. A large seiche may develop if a landslide occurred at Yellowtail Dam (five to six miles in the area of Bull Elk). It was noted that national statistics indicate risks in Big Horn County.

Participants discussed frequency of risk versus magnitude. Should goals and strategies be historical damage statistics? Participants suggested that two maps be produced; one map for risk likelihood and one map for damage costs. Additionally, how should one prioritize hazards that can be mitigated? How is a risk equation calculated? Frequency should be considered but should mitigable hazards be factored into risk equation? If we can't mitigate a hazard, like a volcano, should we disregard this hazard?

It was also observed that the hazard maps show that Big Horn and the Crow Reservation do not always share the same risk rating. Shouldn't the county and reservation share the same rating?

Severe Thunderstorms, Hail, Wind and Tornadoes

Wheatland – Medium
Golden Valley – Medium
Musselshell – Medium
Stillwater – High
Yellowstone – High
Treasure – No Approved Plan
Rosebud – No Approved Plan
Carbon – Medium
Big Horn – High
Crow Reservation – Medium
Northern Cheyenne Reservation - No Approved Plan

No changes are needed.

Terrorism and Violence

Wheatland – Low
Golden Valley – Low
Musselshell – Low
Stillwater – Not Assessed
Yellowstone – Low

Treasure – No Approved Plan
Rosebud – No Approved Plan
Carbon – Not Assessed
Big Horn – Not Assessed
Crow Reservation – Low
Northern Cheyenne Reservation - No Approved Plan

Participants suggested that computer service continue during public health emergencies. Additionally, it was suggested that the Terrorism and Violence hazard continue to be included in local plans but in the future, emphasize the natural hazards, damages and personnel injuries that can result from this hazard. Additionally, can the State Plan include a section on Terrorism and Violence that addresses terrorist acts to the State IT structure? This is a COOP issue and needs to be discussed at the April 19th stakeholder meeting.

Volcanic Eruption

Wheatland – Not Assessed
Golden Valley – Not Assessed
Musselshell – Not Assessed
Stillwater – Low
Yellowstone – Low
Treasure – No Approved Plan
Rosebud – No Approved Plan
Carbon – Low
Big Horn – Low
Crow Reservation – Low
Northern Cheyenne Reservation - No Approved Plan

Participants suggested that the Volcanic Eruption hazard be rated the same for every county in the district.

Additionally, participants wondered why a hazard is identified if it can't be mitigated. The Update to the State Plan should clarify this so all the local jurisdictions can recognize a hazard but disregard it in their plans.

Wildfire

Wheatland – High
Golden Valley – High
Musselshell – High
Stillwater – High
Yellowstone – High
Treasure – No Approved Plan
Rosebud – No Approved Plan
Carbon – High
Big Horn – High
Crow Reservation – High

Northern Cheyenne Reservation - No Approved Plan

Participants noted that the risk map is good and that all counties are rated as high risk. It was wondered if the state reverse 911 system requires three alternatives for evacuation to be mapped in advance.

Winterstorms

Wheatland – High
Golden Valley – High
Musselshell – High
Stillwater – Change Medium to High
Yellowstone – Change Medium to High
Treasure – No Approved Plan
Rosebud – No Approved Plan
Carbon – High
Big Horn – High
Crow Reservation – High
Northern Cheyenne Reservation - No Approved Plan

Participants questioned why Stillwater and Yellowstone counties are rated as medium risk when the other counties are high risk. Is there a lack of shelters in rural counties compared to Yellowstone County and Billings? It was noted that losing power and heat can be serious in rural areas. Participants thought that all counties should be rated high for this hazard as winterstorm frequency is high although economic loss is fairly low. A severe winterstorm was defined as a storm that knocks out the power. Loss of power is an issue with the rural co-ops. Winterstorm risk can depend on the amount of public education. Yellowstone County has done a good job with public education but Rosebud County has not.

ASSESSMENT OF STATE GOALS – DISTRICT 5

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Change wording to "Assist locals with mitigation opportunities".

Goal 3: Mitigate the potential loss of life and property from flooding.

Subdivision reviews, flooding and drainage are big issues. State DEQ or local floodplain administrator may help with these issues. Local areas need more guidance and support from the state on the "grey areas" of floodplain management and development. Locals need more training, support and technical assistance from the DNRC and DEQ (review storm drainage). Participants wondered if floodplain management should be consolidated with the State Disaster and Emergency Services.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Participants noted the same issue of increased State support applies to Wildland Urban Interface building.

Goal 5: Reduce potential earthquake losses in Western Montana.

Goal 6: Minimize economic impacts of drought.

Drought and fire should go together and they should be a higher goal priority than flooding.

Goal 7: Reduce impacts from severe winter weather.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

Make wind, hail and tornadoes a separate goal before Goal 8.

OTHER COMMENTS

State Plan needs to address state aid to locals with disasters and mitigation projects as there is poor communication between the State and locals. State objectives should be to work with locals by assisting with planning, achieving goals, and obtaining grants, etc.

Phrasing of State goals and objectives needs to emphasize that the State will assist locals with all hazards and mitigation. Additionally, the State will work with local jurisdictions in a partnership to achieve all the State goals.

Counties need to know what other local plans discuss. It was suggested that there be a link to each local plan in the Updated State Plan. Make the State PDM plan the “Yellow Book/Yellow Pages” for local jurisdictions to refer to for all emergencies, i.e., who is going to handle pandemic flu, the Point of Contact, etc. and refer to links.

Counties wondered if they should only evaluate their top three hazards but they were assured that they could assess all hazards they felt were a threat to their communities.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results

What Jurisdiction type do you represent?

	Response Percent	Response Count
Federal <input type="checkbox"/>	4.2%	1
State <input type="checkbox"/>	8.3%	2
County <input type="checkbox"/>	37.5%	9
Tribal <input type="checkbox"/>	4.2%	1
Public Utility <input type="checkbox"/>	4.2%	1
General Public <input type="checkbox"/>	25.0%	6
Other (please specify) <input type="checkbox"/>	20.8%	5
answered question		24
skipped question		0

What County/Tribal Community do you represent or as a private citizen where do you live?

	Response Percent	Response Count
Blackfeet	0.0%	0
Crow	0.0%	0
Flathead	0.0%	0
Fort Belknap	0.0%	0
Fort Peck	0.0%	0
Northern Cheyenne	0.0%	0
Rocky Boy's	0.0%	0
Beaverhead	0.0%	0
Big Horn	0.0%	0
Blaine	0.0%	0
Broadwater	0.0%	0
Carbon <input type="checkbox"/>	8.3%	2
Carter	0.0%	0
Cascade	0.0%	0
Chouteau	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Custer	0.0%	0
Daniels	0.0%	0
Dawson	0.0%	0
Deer Lodge	0.0%	0
Fallon	0.0%	0
Fergus	0.0%	0
Flathead	0.0%	0
Gallatin	0.0%	0
Garfield	0.0%	0
Glacier	0.0%	0
Golden Valley	0.0%	0
Granite	0.0%	0
Hill	0.0%	0
Jefferson	0.0%	0
Judith Basin	0.0%	0
Lake	0.0%	0
Lewis And Clark	0.0%	0
Liberty	0.0%	0
Lincoln	0.0%	0
Madison	0.0%	0
McCone	0.0%	0
Meagher	0.0%	0
Mineral	0.0%	0
Missoula	0.0%	0
Musselshell <input type="checkbox"/>	8.3%	2
Park	0.0%	0
Petroleum	0.0%	0
Phillips	0.0%	0
Pondera	0.0%	0
Powder River	0.0%	0
Powell	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie	0.0%	0
Ravalli	0.0%	0
Richland	0.0%	0
Roosevelt	0.0%	0
Rosebud	0.0%	0
Sanders	0.0%	0
Sheridan	0.0%	0
Silver Bow	0.0%	0
Stillwater	4.2%	1
Sweet Grass	0.0%	0
Teton	0.0%	0
Toole	0.0%	0
Treasure	0.0%	0
Valley	0.0%	0
Wheatland	0.0%	0
Wibaux	0.0%	0
Yellowstone	79.2%	19
Other	0.0%	0
answered question		24
skipped question		0

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.		
	Response Percent	Response Count
Yes	29.2%	7
No	70.8%	17
answered question		24
skipped question		0


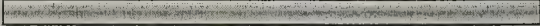

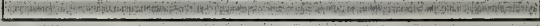
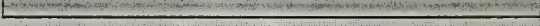


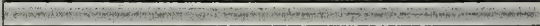
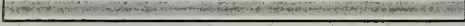
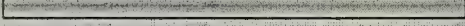
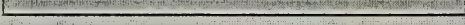
How would you rate the overall quality and content of the plan.		
	Response Percent	Response Count
1 - Poor	0.0%	0
2	0.0%	0
3 - Average	33.3%	2
4	50.0%	3
5 - Excellent	16.7%	1
answered question		6
skipped question		18

Do you feel the plan accurately portrays natural and man-made hazards in Montana?		
	Response Percent	Response Count
Yes	100.0%	6
No	0.0%	0
answered question		6
skipped question		18

What improvements do you think could be made to the plan?		Response Count
		4
answered question		4
skipped question		20

From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction. High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	19.0% (4)	47.6% (10)	33.3% (7)	2.14	21
Drought	85.7% (18)	9.5% (2)	4.8% (1)	1.19	21
Earthquake	5.0% (1)	35.0% (7)	60.0% (12)	2.55	20
Flooding/Dam Failure	19.0% (4)	52.4% (11)	28.6% (6)	2.10	21
Hazardous Material Incidents	38.1% (8)	57.1% (12)	4.8% (1)	1.67	21
Landslide	4.8% (1)	19.0% (4)	76.2% (16)	2.71	21
Terrorism/Violence	4.8% (1)	33.3% (7)	61.9% (13)	2.57	21
Thunderstorm Wind, Hail, and Tornadoes	61.9% (13)	38.1% (8)	0.0% (0)	1.38	21
Volcanic Eruption	0.0% (0)	9.5% (2)	90.5% (19)	2.90	21
Wildfire	76.2% (16)	19.0% (4)	4.8% (1)	1.29	21
Winter Storms/Avalanche	33.3% (7)	61.9% (13)	4.8% (1)	1.71	21
<i>answered question</i>					21
<i>skipped question</i>					3

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.			Response Percent	Response Count
Communicable Disease			77.8%	7
Drought			77.8%	7
Earthquake			77.8%	7
Flooding/Dam Failure			77.8%	7
Hazardous Material Incidents			77.8%	7
Landslide			66.7%	6
Terrorism/Violence			66.7%	6
Thunderstorm Wind, Hail, and Tornadoes			77.8%	7
Volcanic Eruption			66.7%	6
Wildfire			66.7%	6
Winter Storms/Avalanche			66.7%	6
answered question				9
skipped question				15

Please prioritize the following proposed NEW goals for the State Plan Update by order of importance from the perspective of your jurisdiction (1=highest / 10=lowest):

	High				Medium				Low		Rating Average
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	46.2% (6)	7.7% (1)	30.8% (4)	7.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	7.7% (1)	0.0% (0)	0.0% (0)	2.46
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	38.5% (5)	23.1% (3)	23.1% (3)	7.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	7.7% (1)	0.0% (0)	0.0% (0)	2.46
Reduce the Community Impacts of Wildland and Rangeland Fires	23.1% (3)	53.8% (7)	0.0% (0)	7.7% (1)	7.7% (1)	0.0% (0)	7.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.54
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	7.7% (1)	15.4% (2)	30.8% (4)	23.1% (3)	7.7% (1)	15.4% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.54
Minimize Economic Impacts of Drought	7.7% (1)	30.8% (4)	23.1% (3)	7.7% (1)	7.7% (1)	7.7% (1)	7.7% (1)	7.7% (1)	0.0% (0)	0.0% (0)	3.69
Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)	0.0% (0)	16.7% (2)	8.3% (1)	0.0% (0)	41.7% (5)	16.7% (2)	0.0% (0)	16.7% (2)	0.0% (0)	0.0% (0)	5.00
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	0.0% (0)	23.1% (3)	0.0% (0)	15.4% (2)	23.1% (3)	30.8% (4)	7.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	4.62
Reduce Potential Earthquake Losses in Western Montana	0.0% (0)	0.0% (0)	0.0% (0)	23.1% (3)	15.4% (2)	0.0% (0)	23.1% (3)	15.4% (2)	7.7% (1)	15.4% (2)	6.77
Reduce Losses from Hazardous Material Incidents	0.0% (0)	23.1% (3)	7.7% (1)	23.1% (3)	23.1% (3)	15.4% (2)	0.0% (0)	0.0% (0)	7.7% (1)	0.0% (0)	4.38
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	0.0% (0)	7.7% (1)	15.4% (2)	7.7% (1)	30.8% (4)	7.7% (1)	7.7% (1)	7.7% (1)	0.0% (0)	15.4% (2)	5.62

answered question

skipped question

Please indicate any additional Goals you think should be added to the State Plan.

Response Count

2

answered question

2

skipped question

22

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.											
	High		Medium				Low		Rating Average		
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	25.0% (3)	25.0% (3)	16.7% (2)	16.7% (2)	8.3% (1)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.83
Conduct Level 1 HAZUS-MH analyses for all Montana counties	16.7% (2)	8.3% (1)	33.3% (4)	8.3% (1)	33.3% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.33
Improve Statewide HAZUS data	16.7% (2)	8.3% (1)	33.3% (4)	16.7% (2)	25.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.25
Determine GPS locations of all State buildings for detailed, non-public analysis	8.3% (1)	8.3% (1)	33.3% (4)	25.0% (3)	0.0% (0)	8.3% (1)	0.0% (0)	8.3% (1)	0.0% (0)	8.3% (1)	4.25
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	8.3% (1)	16.7% (2)	25.0% (3)	25.0% (3)	8.3% (1)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	8.3% (1)	4.00
Promote earth science education of hazards in schools	9.1% (1)	0.0% (0)	9.1% (1)	27.3% (3)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	9.1% (1)	5.09
Conduct a Statewide warning capability assessment	25.0% (3)	25.0% (3)	8.3% (1)	8.3% (1)	16.7% (2)	8.3% (1)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	3.33
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	25.0% (3)	33.3% (4)	16.7% (2)	8.3% (1)	8.3% (1)	0.0% (0)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	2.83
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	16.7% (2)	25.0% (3)	41.7% (5)	0.0% (0)	0.0% (0)	0.0% (0)	16.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.08
Increase the public awareness of hazards	33.3% (4)	33.3% (4)	16.7% (2)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	8.3% (1)	0.0% (0)	2.58
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	41.7% (5)	16.7% (2)	25.0% (3)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	2.50
Increase readiness for the protection of life and property during an event	33.3% (4)	25.0% (3)	16.7% (2)	16.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	2.67
answered question											

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

2

answered question

2

skipped question

22

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High				Medium				Low		Rating Average
Continue outreach of mitigation project funding opportunities	25.0% (3)	25.0% (3)	16.7% (2)	16.7% (2)	8.3% (1)	0.0% (0)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	3.00
Provide technical assistance with the environmental review process	9.1% (1)	27.3% (3)	9.1% (1)	27.3% (3)	18.2% (2)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.45
Provide technical assistance for project development	16.7% (2)	8.3% (1)	25.0% (3)	25.0% (3)	16.7% (2)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.42
Create an electronic database of completed mitigation projects in Montana	25.0% (3)	0.0% (0)	0.0% (0)	33.3% (4)	16.7% (2)	8.3% (1)	8.3% (1)	0.0% (0)	8.3% (1)	0.0% (0)	4.25
Increase the scope and participation of the State Hazard Mitigation Team	16.7% (2)	8.3% (1)	25.0% (3)	8.3% (1)	16.7% (2)	8.3% (1)	16.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.92
Create a private advisory group for mitigation	0.0% (0)	0.0% (0)	25.0% (3)	16.7% (2)	25.0% (3)	8.3% (1)	8.3% (1)	0.0% (0)	0.0% (0)	16.7% (2)	5.42
Streamline mitigation standards in state and/or local subdivision regulations	8.3% (1)	16.7% (2)	25.0% (3)	16.7% (2)	16.7% (2)	8.3% (1)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.75
Strengthen state and/or local building codes	16.7% (2)	8.3% (1)	25.0% (3)	0.0% (0)	8.3% (1)	16.7% (2)	16.7% (2)	8.3% (1)	0.0% (0)	0.0% (0)	4.33
Require growth policies consider natural and man-made hazard	16.7% (2)	25.0% (3)	33.3% (4)	8.3% (1)	8.3% (1)	0.0% (0)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.00
Create a state funded grant program to assist with the 25% match for local governments	33.3% (4)	8.3% (1)	25.0% (3)	0.0% (0)	16.7% (2)	8.3% (1)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.17
Coordinate local plan development	25.0% (3)	16.7% (2)	33.3% (4)	8.3% (1)	8.3% (1)	8.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.83
Provide technical assistance with											

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	25.0%	0.0%	33.3%	16.7%	0.0%	16.7%	0.0%	8.3%	0.0%	0.0%	3.58
	(3)	(0)	(4)	(2)	(0)	(2)	(0)	(1)	(0)	(0)	
	answered question										
	skipped question										

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
											Response Count
											1
										answered question	1
										skipped question	23

Goal: Mitigate the potential loss of life and property from flooding.											
	High				Medium				Low		Rating Average
Develop and improve upon model floodplain ordinances for local governments	27.3%	9.1%	18.2%	0.0%	36.4%	0.0%	9.1%	0.0%	0.0%	0.0%	3.45
	(3)	(1)	(2)	(0)	(4)	(0)	(1)	(0)	(0)	(0)	
Develop mapping for unmapped flood prone areas	18.2%	9.1%	27.3%	0.0%	36.4%	0.0%	9.1%	0.0%	0.0%	0.0%	3.64
	(2)	(1)	(3)	(0)	(4)	(0)	(1)	(0)	(0)	(0)	
Update floodplain mapping of mapped areas	18.2%	9.1%	36.4%	0.0%	27.3%	0.0%	9.1%	0.0%	0.0%	0.0%	3.45
	(2)	(1)	(4)	(0)	(3)	(0)	(1)	(0)	(0)	(0)	
Establish a schedule for NFIP map reviews and updates	9.1%	27.3%	27.3%	0.0%	18.2%	9.1%	9.1%	0.0%	0.0%	0.0%	3.55
	(1)	(3)	(3)	(0)	(2)	(1)	(1)	(0)	(0)	(0)	
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	18.2%	9.1%	27.3%	18.2%	18.2%	9.1%	0.0%	0.0%	0.0%	0.0%	3.36
	(2)	(1)	(3)	(2)	(2)	(1)	(0)	(0)	(0)	(0)	
Increase the public awareness of flood mitigation	27.3%	18.2%	18.2%	0.0%	27.3%	0.0%	0.0%	0.0%	9.1%	0.0%	3.36
	(3)	(2)	(2)	(0)	(3)	(0)	(0)	(0)	(1)	(0)	
Reduce the number of current and future structures in the floodplain	36.4%	9.1%	18.2%	9.1%	18.2%	9.1%	0.0%	0.0%	0.0%	0.0%	2.91
	(4)	(1)	(2)	(1)	(2)	(1)	(0)	(0)	(0)	(0)	
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	27.3%	0.0%	36.4%	0.0%	27.3%	0.0%	9.1%	0.0%	0.0%	0.0%	3.36
	(3)	(0)	(4)	(0)	(3)	(0)	(1)	(0)	(0)	(0)	
Provide adequate warning of flooding events	27.3%	9.1%	45.5%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	9.1%	3.18
	(3)	(1)	(5)	(0)	(1)	(0)	(0)	(0)	(0)	(1)	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

23

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium				Low	Rating Average	R
Reduce fuels in the wildland urban interface	45.5% (5)	0.0% (0)	36.4% (4)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	2.73
Reduce hazardous fuels in rangeland areas	18.2% (2)	0.0% (0)	45.5% (5)	0.0% (0)	27.3% (3)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	3.64
Accurately assess and address the current wildland urban interface problems at the subdivision level	45.5% (5)	18.2% (2)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	2.55
Enhance firefighting resources and improve firefighting capabilities	36.4% (4)	27.3% (3)	9.1% (1)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	2.73
Enhance community awareness of wildfires through education	36.4% (4)	27.3% (3)	18.2% (2)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	2.64
Enhance effectiveness of response and evacuation	27.3% (3)	27.3% (3)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.64
Establish mapping or record keeping practices to support fuel management strategies	27.3% (3)	0.0% (0)	36.4% (4)	9.1% (1)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.27
Minimize human-caused ignition sources in fire-prone areas	36.4% (4)	27.3% (3)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.55
Centralize fire history documentation	9.1% (1)	36.4% (4)	0.0% (0)	9.1% (1)	27.3% (3)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.73
Develop a consistent Statewide fire risk assessment system	9.1% (1)	36.4% (4)	18.2% (2)	18.2% (2)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	3.64
Encourage sustainable growth in wildland fire hazard areas	27.3% (3)	27.3% (3)	0.0% (0)	18.2% (2)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	3.64

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

23

Goal: Reduce potential earthquake losses in Western Montana.

	High				Medium				Low		Rating Average
Goal: Reduce potential earthquake losses in Western Montana.	9.1% (1)	0.0% (0)	27.3% (3)	0.0% (0)	27.3% (3)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	18.2% (2)	5.36
Provide greater enforcement of current building codes	18.2% (2)	9.1% (1)	36.4% (4)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	18.2% (2)	4.45
Develop model seismic building codes	9.1% (1)	0.0% (0)	54.5% (6)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	18.2% (2)	4.73
Create stronger building standards for critical facilities and structures housing vulnerable populations	18.2% (2)	9.1% (1)	36.4% (4)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	18.2% (2)	4.45
Require earthquake drills in schools in Western Montana	18.2% (2)	9.1% (1)	18.2% (2)	9.1% (1)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	18.2% (2)	4.82
Expand and upgrade earthquake monitoring network and reporting capabilities	10.0% (1)	20.0% (2)	20.0% (2)	0.0% (0)	30.0% (3)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	4.30
Continue "Earthquake Preparedness Month" outreach activities during the month of October	0.0% (0)	9.1% (1)	18.2% (2)	27.3% (3)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	18.2% (2)	5.36
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	0.0% (0)	9.1% (1)	27.3% (3)	18.2% (2)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	18.2% (2)	5.09
Seismically retrofit existing critical facilities and government assets	18.2% (2)	9.1% (1)	18.2% (2)	9.1% (1)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	18.2% (2)	4.64

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

23

Goal: Minimize economic impacts of drought.

	High				Medium				Low		Rating Average	R
Develop a system for distributing information on current conditions	27.3% (3)	0.0% (0)	27.3% (3)	9.1% (1)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.45	
Continue to support the State Drought Advisory Committee	18.2% (2)	0.0% (0)	27.3% (3)	9.1% (1)	36.4% (4)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	3.91	
Install Statewide drought monitoring stations	27.3% (3)	0.0% (0)	9.1% (1)	27.3% (3)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.55	
Use long-term groundwater monitoring to assess drought conditions	27.3% (3)	0.0% (0)	27.3% (3)	18.2% (2)	18.2% (2)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.27	
Educate farmers and ranchers in fiscally preventing drought losses	27.3% (3)	9.1% (1)	36.4% (4)	0.0% (0)	18.2% (2)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.09	
Educate farmers and ranchers in reducing physical losses during dry seasons	27.3% (3)	9.1% (1)	45.5% (5)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.91	
Identify water retention projects that could lessen the effects of drought	27.3% (3)	27.3% (3)	18.2% (2)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	3.00	
answered question												
skipped question												

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
											Response Count
											3
answered question											3
skipped question											21

Goal: Reduce impacts from severe winter weather.												
	High				Medium				Low			
											Rating Average	R
Distribute winter driving and survival tips	9.1% (1)	18.2% (2)	18.2% (2)	0.0% (0)	45.5% (5)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	4.00	
Increase public awareness of winter weather hazards	18.2% (2)	9.1% (1)	18.2% (2)	18.2% (2)	27.3% (3)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	3.82	
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	9.1% (1)	18.2% (2)	18.2% (2)	9.1% (1)	18.2% (2)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	4.45	
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	27.3% (3)	18.2% (2)	36.4% (4)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	3.27	
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	18.2% (2)	0.0% (0)	27.3% (3)	18.2% (2)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	3.64	
answered question												
skipped question												

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
											Response Count
											2
answered question											2
skipped question											22

Goal: Reduce impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)

	High				Medium				Low		Rating Average	R
Install safety film on critical facilities to prevent shattering glass.	9.1% (1)	18.2% (2)	9.1% (1)	18.2% (2)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	4.27	
Encourage development and enforcement of wind resistant buildings and construction codes	9.1% (1)	18.2% (2)	9.1% (1)	18.2% (2)	27.3% (3)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	4.18	
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	9.1% (1)	9.1% (1)	18.2% (2)	27.3% (3)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	18.2% (2)	4.91	
answered question												
skipped question												

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	1
answered question	1
skipped question	23

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Reduce losses from Hazardous Material Incidents											
	High				Medium				Low		Rating Average
Develop communication plan for hazardous material emergencies	45.5% (5)	9.1% (1)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	2.73
Enhance information capability on types of hazardous materials traveling transportation routes	18.2% (2)	18.2% (2)	27.3% (3)	18.2% (2)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	3.36
Provide hazardous material training to emergency responders	27.3% (3)	45.5% (5)	0.0% (0)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	2.91
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	36.4% (4)	36.4% (4)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	2.64
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.		Response Count
		1
answered question		1
skipped question		23

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High				Medium				Low				Rating Average
Identify and map areas of greatest landslide and avalanche potential	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	27.3% (3)			5.55
Create a landslide/avalanche technical committee	0.0% (0)	0.0% (0)	18.2% (2)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	0.0% (0)	36.4% (4)			6.91
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	9.1% (1)	0.0% (0)	18.2% (2)	18.2% (2)	18.2% (2)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	18.2% (2)			5.36
Reduce losses from communicable disease	18.2% (2)	9.1% (1)	18.2% (2)	0.0% (0)	27.3% (3)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)			4.27
Increase awareness of risks from communicable disease	18.2% (2)	18.2% (2)	18.2% (2)	0.0% (0)	36.4% (4)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)			3.64
<i>answered question</i>													
<i>skipped question</i>													

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	1
<i>answered question</i>	1
<i>skipped question</i>	23

Please indicate how long it took you to complete the survey.		
	Response Percent	Response Count
5 minutes	0.0%	0
10 minutes	20.0%	2
15 minutes	30.0%	3
20 minutes	40.0%	4
30 minutes	10.0%	1
Greater than 30 minutes	0.0%	0
answered question		10
skipped question		14

DISTRICT 5 ON-LINE SURVEY - OTHER JURISDICTIONS COMPLETING SURVEY

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Comment Text		Response Date
 Find	1. city	Thu, 5/24/07 12:31 PM
 Find	2. American Red Cross	Thu, 5/24/07 10:59 AM
 Find	3. City	Thu, 5/24/07 10:44 AM
 Find	4. City of Billings	Thu, 5/24/07 8:46 AM
 Find	5. municipal	Thu, 5/24/07 6:40 AM
		10 responses per page

District 5 On-Line Survey - Suggested Improvements to State Plan

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	Comment Text	Response Date
 Find	1. Mitigations should link to counties by providing state support to them for their mitigation efforts. All disasters are local.	Tue, 6/5/07 8:47 PM
 Find	2. Some hazards identified in specific portions of the state may be over emphasized in terms of the real threat they create in a given jurisdiction. Also, some very specific threats are large in magnitude if they occur, but almost never occur or have a very low probability of occurring. For example, failure of the Yellowtail Dam in Big Horn County, or devastating earthquake in the City of Billings.	Thu, 5/24/07 8:50 AM
 Find	3. None	Thu, 5/24/07 6:38 AM
 Find	4. /	Wed, 5/23/07 3:36 PM
10 responses per page		

District 5 On-Line Survey - Suggested New Goals

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Comment Text		Response Date
 Find	1. I think the state plan needs to address emergency preparedness and disaster management for vulnerable populations, like home bound elders, or assist the agencies serving these individuals. Big Sky Senior Services, Inc.(BSSS) serves low-income seniors. We were told by local emergency services providers that they would be unable to assist individuals, should a disaster occur. BSSS in Billings is attempting to assure these individuals' safety, but we are severely hampered by a lack of resources. We have learned from Katrina that disasters are a matter of life or death, especially for vulnerable populations. It is vital to find a way to provide services to keep these individuals safe during a disaster.	Thu, 5/24/07 8:44 AM
 Find	2. None	Thu, 5/24/07 6:42 AM
10 responses per page		

District 5 On-Line Survey - Other Goals 1 Mitigation Projects

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

Displaying 1 - 2 of 2 responses

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Comment Text		Response Date
 Find	1. Ensure seamless communication between all law enforcement and public safety agencies at the local, regional and state level. This should be done immediately as it is often the biggest issue when a disaster strikes and is one of the most basic issues that should be resolved.	Thu, 5/24/07 9:03 AM
 Find	2. None	Thu, 5/24/07 6:46 AM
		10 responses per page

District 5 On-Line Survey - Other Severe Winter Weather Mitigation Projects

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
Displaying 1 - 2 of 2 responses

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Comment Text		Response Date
 Find	1. Identify and develop evacuation procedures for individuals, who cannot survive during a power outage, such as people on oxygen, ventilators,etc.	Thu, 5/24/07 8:54 AM
 Find	2. None	Thu, 5/24/07 6:54 AM
10 responses per page		

District 5 On-Line Survey - Other Drought Mitigation Projects

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Comment Text		Response Date
 Find	1. Conservation of water use is the single most effective way of handling drought. All municipalities in Monatana should be employing water conservation methods and counties should also have water management programs. No one has a right to use all the water they want. If we conserved water use in MONTana like many other states, we would not have the all of the drought problems we do and we would delay millions of dollars in infrastructure upgrades and new conatruction that is only needed because of high water demands.	Thu, 5/24/07 9:10 AM
 Find	2. Educate individual citizens, especially homeowners, about year-round water conservation. Provide incentives for used water recycling systems and rain water collection systems.	Thu, 5/24/07 8:54 AM
 Find	3. None	Thu, 5/24/07 6:54 AM
10 responses per page		

District 5 On-Line Survey-Impact of Future Development on Communicable Disease Hazard

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






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Comment Text		Response Date
 Find	1. low impact	Wed, 6/20/07 12:58 PM
 Find	2. All factors increase in importance as population increases	Tue, 6/5/07 8:50 PM
 Find	3. influx of more people will increase the risk.	Tue, 5/29/07 9:20 AM
 Find	4. increasing potential	Fri, 5/25/07 2:05 PM
 Find	5. Larger population, more people could be affected	Thu, 5/24/07 8:55 AM
 Find	6. None	Thu, 5/24/07 6:40 AM
 Find	7. more people-more disease chances	Wed, 5/23/07 3:41 PM
		10 responses per page

District 5 On-Line Survey-Impact of Future Development on Drought Hazard

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


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Comment Text		Response Date
 Find	1. none	Wed, 6/20/07 12:58 PM
 Find	2. the demand for water will increase with future development.	Tue, 5/29/07 9:20 AM
 Find	3. more fires	Fri, 5/25/07 2:05 PM
 Find	4. More paved areas cause higher temperatures. This creates heat islands near the city and increases the drought potential.	Thu, 5/24/07 9:19 AM
 Find	5. Significant	Thu, 5/24/07 8:55 AM
 Find	6. None	Thu, 5/24/07 6:40 AM
 Find	7. lack of drinking water, ag community distress	Wed, 5/23/07 3:41 PM
10 responses per page		

District 5 On-Line Survey-Impact of Future Development on Earthquake Hazard

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
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Comment Text		Response Date
 Find	1. none	Wed, 6/20/07 12:58 PM
 Find	2. minimal	Fri, 5/25/07 2:05 PM
 Find	3. A remote possibility, but could cause great destruction. Development would raise the potential for destruction, but should not be a determining factor.	Thu, 5/24/07 9:19 AM
 Find	4. Signifant impact on all development	Thu, 5/24/07 8:55 AM
 Find	5. Widespread damage	Thu, 5/24/07 7:30 AM
 Find	6. Minor	Thu, 5/24/07 6:40 AM
 Find	7. communities(housing and infrastructure) are not build to withstand earthquakes	Wed, 5/23/07 3:41 PM
10 responses per page		

District 5 On-Line Survey-Impact of Future Development on Flooding Hazard

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
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Comment Text		Response Date
 Find	1. high	Wed, 6/20/07 12:58 PM
 Find	2. increasing potential for problems	Fri, 5/25/07 2:05 PM
 Find	3. More regulation and inspection needed for dams. Flooding is a distinct possibility and our dams should be held to a high standard.	Thu, 5/24/07 9:19 AM
 Find	4. Significant depending on location	Thu, 5/24/07 8:55 AM
 Find	5. Displacement of residents	Thu, 5/24/07 7:30 AM
 Find	6. None	Thu, 5/24/07 6:40 AM
 Find	7. more change of damage as development increases	Wed, 5/23/07 3:41 PM
10 responses per page		

District 5 On-Line Survey-Impact of Future Development on Hazardous Material Incidents








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Comment Text		Response Date
 Find	1. high	Wed, 6/20/07 12:58 PM
 Find	2. increasing potential for incidents	Fri, 5/25/07 2:05 PM
 Find	3. Major truck and rail traffic goes through our area. Inspection and regulation is imperative.	Thu, 5/24/07 9:19 AM
 Find	4. Depends on new highway routes and location of new development. Low at this time.	Thu, 5/24/07 8:55 AM
 Find	5. Major disruption	Thu, 5/24/07 7:30 AM
 Find	6. Minor	Thu, 5/24/07 6:40 AM
 Find	7. great potential for problems with rail traffic , refineries, and businesses	Wed, 5/23/07 3:41 PM
10 responses per page		

District 5 On-Line Survey-Impact of Future Development on Landslide Hazard

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Comment Text		Response Date
 Find	1. none	Wed, 6/20/07 12:58 PM
 Find	2. increasing potential for problems	Fri, 5/25/07 2:05 PM
 Find	3. Not common in Yellowstone County, but other areas of the state have great potential for this. CA should serve as an example of why development is not logical in areas prone to landslides.	Thu, 5/24/07 9:19 AM
 Find	4. Minor impact	Thu, 5/24/07 8:55 AM
 Find	5. None	Thu, 5/24/07 6:40 AM
 Find	6. depends on where development occurs	Wed, 5/23/07 3:41 PM
		10 responses per page

District 5 On-Line Survey-Impact of Future Development on Severe Summer Weather Hazards

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

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Comment Text		Response Date
 Find	1. medium	Wed, 6/20/07 12:58 PM
 Find	2. minimal	Fri, 5/25/07 2:05 PM
 Find	3. These are common. A working warning system is necessary, as well as shelters, etc. Education on steps to protect property and people is needed. A plan to assist in clean-up and recovery needed.	Thu, 5/24/07 9:19 AM
 Find	4. Impact will be significant whether new development occurs or not	Thu, 5/24/07 8:55 AM
 Find	5. Major disruption	Thu, 5/24/07 7:30 AM
 Find	6. None	Thu, 5/24/07 6:40 AM
 Find	7. more development, more potential damage	Wed, 5/23/07 3:41 PM
		10 responses per page

District 5 On-Line Survey-Impact of Future Development on Terrorism Hazard

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Comment Text		Response Date
 Find	1. none	Wed, 6/20/07 12:58 PM
 Find	2. minimal	Fri, 5/25/07 2:05 PM
 Find	3. With three refineries, this is a possibility. Training in security is essential.	Thu, 5/24/07 9:19 AM
 Find	4. Minor to non existent impact	Thu, 5/24/07 8:55 AM
 Find	5. Minor	Thu, 5/24/07 6:40 AM
 Find	6. as the largest city in MT and the rail and pipeline activity, this is a risk	Wed, 5/23/07 3:41 PM
10 responses per page		

District 5 On-Line Survey-Impact of Future Development on Volcanic Eruption Hazard

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Comment Text		Response Date
 Find	1. none	Wed, 6/20/07 12:58 PM
 Find	2. none	Fri, 5/25/07 2:05 PM
 Find	3. Not likely, but plans to assist victims should be in place.	Thu, 5/24/07 9:19 AM
 Find	4. Very unlikely. Potentially catostrophic if Yellowstone caldera were to erupt	Thu, 5/24/07 8:55 AM
 Find	5. None	Thu, 5/24/07 6:40 AM
 Find	6. Low risk, but would be wide spread damage	Wed, 5/23/07 3:41 PM
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District 5 On-Line Survey-Impact of Future Development on Wildfire Hazard

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Comment Text		Response Date
 Find	1. medium	Wed, 6/20/07 12:58 PM
 Find	2. increasing potential for problems	Fri, 5/25/07 2:05 PM
 Find	3. A major problem in this area. Development in high risk areas is asking for trouble - like Rehberg Estates!	Thu, 5/24/07 9:19 AM
 Find	4. Significant threat as new development encroaches into grasslands and forested areas and water supply is minimal to non-existent	Thu, 5/24/07 8:55 AM
 Find	5. Significant	Thu, 5/24/07 6:40 AM
 Find	6. high risk as people keep building in the wildland urban interface	Wed, 5/23/07 3:41 PM
		10 responses per page

District 5 On-Line Survey-Impact of Future Development on Severe Winter Weather Hazards

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Comment Text		Response Date
 Find	1. medium	Wed, 6/20/07 12:58 PM
 Find	2. minimal	Fri, 5/25/07 2:05 PM
 Find	3. Development brings more people, so plans for mobility are needed. Snow emergency routes, shelters, etc.	Thu, 5/24/07 9:19 AM
 Find	4. Moderate impact except for outlying development that is reliant on vehicle travel to access services	Thu, 5/24/07 8:55 AM
 Find	5. Minor	Thu, 5/24/07 6:40 AM
 Find	6. more people = more problems	Wed, 5/23/07 3:41 PM
10 responses per page		

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Projects

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Big Horn County

High Priority

- Qualify the county as a NOAA storm-ready community.
- Identify mechanism for safety response at major events, like Crow Fair.
- Public information on importance of NOAA weather radios.
- Develop an evacuation plan, including identification of local evacuation shelter in Lodge Grass.
- Ensure critical facilities have working NOAA radios.
- Address need for another water storage tower in Lodge Grass.
- Identify emergency safe shelters.
- Continue training/drill exercises, including for evacuations, and expand as necessary.

Medium Priority

- Review and update as necessary emergency response procedures for various disasters in public places.
- Continue to provide for livestock and animals in emergency response plans.
- NOAA radio coverage to all Big Horn County communities.

Low Priority

- Identify sources of assistance for NOAA weather radio acquisition, as necessary.
- Create community emergency response teams.

Crow Reservation

High Priority

- Expand FTE as needed to provide adequate staffing for DES functions.
- Find a neutral site to continue training exercises with other responders.
- Develop back-up plans for when repeaters go "down".
- Work to ensure existing repeaters are addressed as priorities for operation, maintenance and protection from disaster events.
- Implement the centralized dispatch system being developed on the Crow Reservation.
- Attract and retain volunteers for the Volunteer Fire Dept.
- Continue to work with major events (such as Crow Fair) to identify evacuation routes, best ways of providing emergency services, identifying emergency shelters.
- Continue ICS training and coordination.
- Develop policy and methods for first response among the variety of agencies for specific types of disasters. Identify lead agency and back up for each type of disaster and clarify their role.
- Draft Memoranda of Understanding regarding coordination of emergencies.
- Share final EOP with other responders (e.g., Big Horn County, Yellowstone County, BIA, National Park Service).
- Identify need and location for any new repeaters and work to install as necessary.
- Work with TERC to prioritize DES staff time.
- Assess time needed by DES Coordinator to fulfill various tasks in the PDM Plan as well as regular ongoing duties.
- Finalize and adopt the Crow Tribe Emergency Operations Plan. The Plan will identify location(s) of emergency operations center and make provision for adequacy.

Medium Priority

- Identify sources and process for obtaining food and supplies until the Red Cross can arrive with their support. Coordinate with local grocery store.
- Have emergency responders for ambulance based 24 hours per day in Lodge Grass.
- Coordinate with various responders to develop a system to ensure ability to communicate with each other and avoid situations that create confusion.
- Continue to upgrade equipment (e.g., radios) as needed.
- Continue to participate in the Big Sky 11 Consortium as part of the overall Interoperability Montana project.

Golden Valley County

High Priority

- Obtain generator for repeater site.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Golden Valley County

Medium Priority

- Obtain portable repeater that could be used in Snowy Mountain to north and Broadview area where current communication is poor.
- Obtain backup generator for courthouse to support emergency communications.
- Obtain new ambulances for Ryegate and Lavina.
- Obtain mobile generator to use at Golden Valley County courthouse and other critical facilities.
- Install pigtail connections at county critical facilities for mobile generator.

Musselshell County

High Priority

- Upgrade radio communications at the dispatch center to become P-25 compliant.
- Upgrade radio communications for responders to communicate with mutual aid responding units and become P-25 compliant.
- Obtain generator for Emergency Operations Center
- Obtain generators for all repeater sites.
- Develop and enhance Citizens Corp Council.

Medium Priority

- Provide CERT training for the community volunteers on Citizens Corp Council.
- Obtain portable repeater to enhance communications within the County.

Northern Cheyenne Reservation

High Priority

- Develop systems and infrastructure to respond to emergencies and identify an Emergency Operations Center.
- Regularly conduct training exercises, including table-top and field test exercises for various disaster scenarios and evacuations.
- DES Coordinator will lead TERC in annual review of progress on PDM goals and objectives, assessment of next tasks necessary to accomplish goals.
- Develop and maintain an active Tribal Emergency Response Committee that is led and motivated by the DES Coordinator.
- Ensure the DES Coordinator is the active coordinator of various disaster-related activities among the various tribal departments.
- Hire a DES Coordinator and ensure the coordinator has direct line of communication with the Tribal President and Council.
- Identify evacuation routes for various types of disasters, including hazardous materials.

Medium Priority

- Develop systems for distributing emergency supplies and for their collection after the disaster.

Rosebud County

High Priority

- Purchase and install NOAA Weather Radios for critical and special needs facilities.
- Educate critical and special needs facility users on the operation of NOAA Weather Radios.
- Provide information on the different types of statements that may be issued over NOAA Weather Radio.
- Regularly test and maintain NOAA Weather Radios at critical and special needs facilities.

Medium Priority

- Install emergency generators at critical and special needs facilities.
- Regularly test and maintain generators at critical and special needs facilities.
- Improve communications and coordination between Rosebud County and the City of Colstrip for emergency planning.
- Plan for and purchase needed emergency response equipment, emergency communications equipment and vehicles.
- Establish a Colstrip Emergency Operations Center.
- Develop sheltering and other emergency plans specific to the City of Colstrip.
- Improve volunteer recruitment and retention efforts in the City of Colstrip.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Rosebud County

Low Priority

- Develop partnerships with area medical facilities, doctors and veterinarians.
- Develop a surveillance and communications program for tracking communicable disease and water and air contamination.

Treasure County

High Priority

- Host National Weather Service Skywarn training at least once every two years.

Medium Priority

- Educate critical and special needs facility users on the operation of NOAA Weather Radios.
- Purchase and install NOAA Weather Radios for critical and special needs facilities.
- Regularly test and maintain NOAA Weather Radios at critical and special needs facilities.
- Regularly test and maintain generators at critical and special needs facilities.
- Provide information on the different types of statements that may be issued over NOAA Weather Radio.
- Purchase and install a NOAA Weather Radio Transmitter in Hysham.
- Install emergency generators at critical and special needs facilities.

Low Priority

- Construct a facility in Hysham that serves as a community tornado shelter, particularly for those without basements or a sturdy structure, and has a generator to heat and shelter residents, particularly special needs populations, during a power outage.
- Regularly test the community shelter facility with tornado drills and generator tests.
- Regularly test the community shelter facility for disaster exercises and training during non-emergencies.

Wheatland County

High Priority

- Obtain better ambulance for Judith Gap.
- Recruit and provide training for volunteer response personnel.
- Increase involvement of LEPC in all communities.

Medium Priority

- Negotiate for better cell coverage in county.
- Employ full time emergency medical technicians in Harlowton.
- Install an emergency call box in Shawmut.

Yellowstone County

Medium Priority

- Develop countywide building district.
- Rural communication systems.
- Develop emergency shelters.
- Special population emergency planning.

Low Priority

- Animals in disaster.
- Safety window film installation.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Big Horn County

High Priority

- Regularly release information about disaster warning systems.

Crow Reservation

High Priority

- Work to have NOAA weather radios in all critical facilities.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Crow Reservation

High Priority

- Communicate with local radio stations to get notices out regarding severe weather, road conditions, emergencies, etc.

Golden Valley County

Medium Priority

- Obtain sirens for towns of Ryegate and Lavina.
- Implement reverse 911 system for all areas within the county.

Musselshell County

High Priority

- Consider short-wave radio system for emergency communications.
- Implement reverse 911 system.
- Install communication tower at airport.

Medium Priority

- Rebroadcast NOAA weather alerts on local radio station.

Northern Cheyenne Reservation

High Priority

- Continue to participate in the Big Sky 11 Interoperability project (communications among various emergency service providers/systems and jurisdictions in the area).
- Improve cell phone coverage on the Reservation.
- Improve capabilities to forecast weather events and provide warning notifications to the public by obtaining NOAA weather radio reception in Lane Deer.
- Work with critical facilities and public building occupants to ensure each has working NOAA weather radios.
- Identify existing warning systems (such as sirens in Birney and Magic City) and resources (such as the telephones in the water pump houses). Identify inefficiencies and needed improvements and implement.
- Improve communication with Birney.

Rosebud County

High Priority

- Encourage the public to purchase NOAA Weather Radios for their homes.

Medium Priority

- Purchase and integrate a Reverse 911 system into Enhanced 911.
- Identify and contact special needs populations, including those unable to evacuate or receive warnings, throughout the county.
- Create a database of special needs populations through an enrollment program.
- Map the locations of those with special needs and their associated needs.
- Periodically test and evaluate the Reverse 911 system.

Treasure County

Medium Priority

- Periodically test and evaluate the siren.
- Purchase and integrate a Reverse 911 system into Enhanced 911.
- Periodically test and evaluate the Reverse 911 system.
- Encourage the public to purchase NOAA Weather Radios for their homes.
- Evaluate and upgrade the warning siren in Hysham.

Yellowstone County

Medium Priority

- Alerting system expansion.
- Public alerting system maintenance and upgrade.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Big Horn County

High Priority

- Work with school systems on disaster prevention and education projects.
- Public education on preparing and responding to disasters.

Medium Priority

- Disaster Preparedness for occupants of mobile homes.
- Prepare disaster preparedness information for medically at-risk, isolated rural residents, etc.
- Identify and publicize snow routes.
- Public education on protecting livestock and animals during disasters.
- Monthly news releases focusing on a particular disaster type.
- Update publication that provides basic information on hazards in Big Horn County.

Low Priority

- Information to potential and existing homeowners about winter road conditions and other factors that can affect disaster response in winter storm conditions.
- Monitor/evaluate dispatch and coordinate dispatcher training and public education as necessary.

Crow Reservation

Medium Priority

- Provide public information through a variety of methods on how to prepare and respond to a variety of potential disasters and emergencies.

Golden Valley County

High Priority

- Increase public awareness of risk reduction at 4H and County Fairs.
- Identify awareness through the media of emergency shelter locations.

Musselshell County

Medium Priority

- Provide public awareness on location of emergency shelters.

Northern Cheyenne Reservation

Medium Priority

- Provide education and training for the public regarding how to prepare for serious weather and other disaster types.

Rosebud County

High Priority

- Conduct a public education program to encourage individuals and businesses to prepare disaster supplies kits.

Medium Priority

- Educate the public on the benefits of Reverse 911.

Treasure County

Medium Priority

- Educate the public on the siren tones and the desired personal protective actions.
- Educate the public on the benefits of Reverse 911.
- Conduct a public education program to encourage individuals and businesses to prepare disaster supplies kits.

Wheatland County

Medium Priority

- Identify and educate public on location of emergency shelters.

Yellowstone County

Medium Priority

- Develop school safety education.
- Increase weather awareness.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Big Horn County

High Priority

- Long-term needs for technical assistance in Lodge Grass.
- Continue to update emergency resource guide and inventory.
- Regularly assess communications capabilities and address needed changes/improvements, as necessary.
- Address back-up power supply needs of Lodge Grass, starting with refurbishing generator at the school, and providing back-up power to water and wastewater systems.
- Develop an updatable GIS system.

Medium Priority

- Identify naturally occurring high hazard areas.
- Evaluate county evacuation plan and update as necessary.
- Continue to use and consult other disaster plans and programs in area.
- Address specific needs of vulnerable populations in evacuation plans.

Low Priority

- Continue to coordinate with other agencies on rare but potentially catastrophic events.

Crow Reservation

Medium Priority

- Assess need for "Jaws of Life" for the Crow Agency Volunteer Fire Department.

Treasure County

High Priority

- Support the needs of first responders and emergency service providers in the growth policy and related documents.
- Update the countywide growth policy to address all hazards and encourage growth in low hazard areas.
- Gather input from first responders and emergency service providers when revising the growth policy that encourages growth in low hazard areas.

Medium Priority

- Encourage Burlington Northern Santa Fe (BNSF) Railroad to provide GPS coordinates for all emergency calls, including fire and ambulance requests.
- Update countywide subdivision regulations to adopt higher minimum standards for subdivisions that improve their all-hazard disaster resistance.
- Gather input and support the needs of first responders and emergency service providers when updating subdivision regulations that improve all-hazard disaster resistance.
- Support the needs of first responders and emergency service providers in the subdivision regulations and related documents.

Yellowstone County

Medium Priority

- Enhance hazard identification/comprehensive planning/GIS

Low Priority

- Subdivision disaster planning.

OBJECTIVE 1.5 - Increase readiness for the protection of prehistoric and historic cultural resources during an event.

Big Horn County

High Priority

- Develop and incorporate policies and methods for dealing with historic and cultural sites into fire agency standard operating procedures. Consider using outside assistance as part of an annual workshop/training to develop these procedures.
- Continue to work with landowners and other trustees of sites on an incident basis to identify sites and secure sites that are within reach of a fire.

Medium Priority

- Work with owners and managers of recorded sites to share fire suppression plans with local fire entities to familiarize responders with issues specific to the site.
- Expand public awareness about the need to protect historic sites.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 2 - Increase State's capability to provide and assist locals with mitigation opportunities.

OBJECTIVE 2.2 - Promote mitigation through supportive legislation and funding.

Rosebud County

High Priority

- Update city zoning regulations to mitigate development in hazardous areas.
- Gather input and support the needs of first responders and emergency service providers when updating subdivision regulations that improve all-hazard disaster resistance.
- Develop a countywide growth policy that encourages growth in low hazard areas.
- Update countywide subdivision regulations to adopt higher minimum standards for subdivisions that improve their all-hazard disaster resistance.
- Gather input and support the needs of first responders and emergency service providers when developing the growth policy that encourages growth in low hazard areas.
- Gather input and support the needs of first responders and emergency service providers when updating zoning regulations to mitigate development in hazardous areas.

Medium Priority

- Gather input and support the needs of first responders and emergency service providers when updating building codes that require disaster resistance.
- Update city building codes to require disaster resistance to hazards such as severe thunderstorms, wind, tornadoes, floods, wildfire, winterstorms, terrorism, structure fire and earthquakes.

Yellowstone County

Medium Priority

- Develop wise building practices.

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Big Horn County

High Priority

- Complete the Hazard Assessment and Mitigation Plan for the Crow Reservation and implement recommendations.
- Annually review equipment and identify gaps and needs.
- Develop an outreach program for high school students to become members of volunteer fire departments.
- Secure adequate public water supplies, including hydrants. Address specific needs of towns in the county.
- Equip underground water supplies (e.g., cisterns) in gas fields and other locations (such as fire suppression water supplies in new subdivisions) with standardized connections so that firefighters can withdraw water.
- Continue to work to identify funding sources, such as grants, to acquire needed equipment.
- Continue to assure that there is adequate personal protective gear and communications upgrades as necessary.
- Continue to implement the actions identified for Muddy Cluster in the Wildfire Hazard Assessment and Mitigation Plan.
- Continue to implement actions identified in the Crow Fire Management Plan.
- Work with residents and landowners in the Pine Ridge and Sarpy-Tullock areas as individuals or in small groups to identify areas of fuel build-up.

Medium Priority

- For all other areas in the county, work with local residents and landowners to identify areas of fuel build-up and means to address.
- Work with Fidelity and other coal-bed methane exploration and development companies to identify available water supply sources as they become developed through the extraction process. Coordinate adequate access into the facilities.
- Identify and address hazard areas along the Big Horn River.

Low Priority

- Build recognition for firefighters.
- Submit articles to the media about the importance of firefighters, recognizing outstanding individuals, and information on how to participate and who to contact.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Carbon County

High Priority

- Determine locations for additional water supplies and pursue funding to develop new water sources available for fire protection.
- Develop and/or purchase volunteer firefighter recruitment materials.

Medium Priority

- Conduct after action analyses for all major incidents or at least one annually by the Fire Council.
- Review existing MOUs.
- Develop new or update existing MOUs as needed.
- Work with the Carbon County News to feature one volunteer firefighter in the newspaper each month.
- Pursue grants for PPE and communications equipment upgrades.
- Continue to pursue grant opportunities for equipment and training.

Low Priority

- Attend a board meeting of the YBRA, the Girls Scouts, the Westminster Spires, and the Lion's Camp at the beginning of each summer to discuss fire prevention, fire protection and evacuation plans.

Crow Reservation

High Priority

- Continue to implement BIA Wildland Fire Plan, Tribal Fire Plan/Community Fire Plans and applicable portions of the Big Horn and Yellowstone counties CWPP.
- Install water supply monitors at storage facilities.
- Build additional water storage as needed.
- Ensure adequate water supplies and pressure for concurrent fire suppression and basic public needs.
- Identify needs for dry hydrants and install as needed.
- Bring all fire hydrants into working order.

Golden Valley County

Medium Priority

- Increase water storage facilities in town of Lavina.
- Install water tanks in outlying areas of the county.
- Obtain new fire truck for Ryegate.
- Recruit more volunteer fire fighters.
- Install a hydrant system in the town of Lavina to protect Main Street businesses which are connected wood structures.
- Construct new fire hall in Ryegate.
- Secure portable water pumps with large diameter piping that can be laid in the Musselshell River.

Musselshell County

High Priority

- Investigate sources of used fire fighting equipment to equip fire halls.

Medium Priority

- Integrate structure and wildland fire strategies.
- Recruit and provide continuing education for VFD and EMS personnel.
- Install water tanks in rural parts of the county.
- Install dry hydrants in rural parts of the county.
- Provide training for volunteer fire fighters for wildland certification.
- Develop incident command system (NIMS) through development of a local Type 3 Team.

Northern Cheyenne Reservation

High Priority

- Continue to implement BIA Wildland Fire Plan.
- Continue to implement applicable portions of the Big Horn County/Rosebud County CWPP.
- Install water supply monitors at storage facilities.
- Build additional storage as needed to ensure water systems are adequate for fire suppression needs.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Northern Cheyenne Reservation

High Priority

- Continue to implement Tribal Fire Plan/Community Fire Plans.
- Ensure adequate water supplies and pressure for concurrent fire suppression and basic public needs.
- Identify needs for dry hydrants and install as needed.
- Bring all fire hydrants into working order.

Stillwater County

High Priority

- Build and equip an adequate Emergency Operations Center.
- Build and supply fully equipped dispatch facility.
- Create a map of the county showing water sources for fire fighting.
- Determine locations for additional water supplies and pursue funding to develop new water sources available for fire protection.
- Train EOC personnel in Disaster response.
- Continue to pursue grant opportunities for equipment and training.
- Assure that firefighters have adequate training opportunities.
- Compensate firefighters.
- Pursue grants for PPE and communications equipment upgrades.

Medium Priority

- Work with the Stillwater County News to feature one volunteer firefighter in the newspaper each month.
- Increase visibility of protection services.
- Review existing MOUs.
- Develop new or update existing MOUs as needed.
- Develop and/or purchase volunteer firefighter recruitment materials

Low Priority

- Invite the BNSF to conduct annual briefings and training sessions on response to hazmat carried by the railroad.

Treasure County

High Priority

- Host Montana Dept. of Natural Resources and Conservation's Map and Compass Training once every two years.
- Encourage landowners to purchase basic equipment such as radios and water tanks to possibly aid in firefighting efforts once trained.
- Bring in state and federal instructors for basic wildland fire training in Treasure County.

Medium Priority

- Identify people in different geographic parts of the county that know the fuels and terrain and can act as liaisons to state and federal firefighting units.
- Train the identified liaisons (local people with knowledge of fuels and terrain) in basic firefighting terminology and their roles during a wildfire.
- Pre-identify locations of water storage such as stock ponds that could be used during a wildfire.
- Draft agreements with landowners for using water supplies (such as stock ponds) to suppress wildfires.

Low Priority

- Discuss alternatives to paying wildland firefighters with other rural counties and volunteer fire departments.
- Develop a better pay or incentive system for local wildland firefighters to fight the fires.

Wheatland County

High Priority

- Recruit and provide continuing education for VFD and EMS personnel.
- Develop regional water system with dry hydrants in each community.
- Integrate structure and wildland fire strategies.

Medium Priority

- Install dry hydrants in the north portion of the county.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Wheatland County

Medium Priority

- Construct new fire complex for Harlowton.
- Obtain brush truck for town of Judith Gap.
- Obtain fire tender for town of Judith Gap.

Yellowstone County

Medium Priority

- Construct rural dry hydrants.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Big Horn County

High Priority

- Continue to mow along roads in the county and to do this early in the fire season.
- Continue to mow and/or plow fire breaks around communities at risk.
- Address fuel build-up and unmanaged fuels in Lodge Grass.
- Work with Burlington Northern Santa Fe (BNSF) to participate in mowing or prescribed burns along the rail corridor to reduce fuel build-up.

Medium Priority

- Assess need and implement as necessary fire breaks around communication facilities, including radio repeater stations.
- Sponsor community Fire clean-up day and/or other special events in communities throughout the county.

Carbon County

High Priority

- Pursue WUI fuel reduction projects in high risk areas around the county including the Forest Service and the Red Lodge West BLM-private cooperative project.

Medium Priority

- Continue work to implement assisting with fuel reduction at the 400 Ranch.
- Continue Forest Service project to offer fuels reduction around recreation residences in the Main Canyon and the West Fork of Rock Creek.
- Monitor drought stress and mortality in timbered areas.
- Monitor amount of contracted acreage in CRP.

Low Priority

- Meet with Klammer's Tie Yard to discuss fire prevention and encourage development of a prevention and response plan.
- Jointly develop a fuels reduction project for the Grove Creek major subdivision area south of Belfry (BLM, FS, RFD and private landowners).
- Demolish the grain elevator at Edgar.

Golden Valley County

High Priority

- Collaborate with USFS and BLM on fuel reduction projects.
- Create defensible space around structures and promote FIREWISE programs in communities.

Medium Priority

- Create fuel breaks east and west of Ryegate and Lavina.
- Provide better weed control around town of Lavina.
- Coordinate with landowners for enhanced grazing around towns to reduce fuels.
- Clean up slash piles in the community of Lavina.
- Modify fuels in Bull Mountains.

Musselshell County

High Priority

- Develop a County-wide fire district for continued wildfire suppression and the implementation of structure protection.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Musselshell County

Medium Priority

- Coordinate with other agencies and landowners regarding construction of fire breaks.
- Coordinate with other agencies and landowners for implementation of fuels reduction projects.

Northern Cheyenne Reservation

High Priority

- New construction will be of "fire-wise" materials.
- Enforce existing Housing Authority ordinances related to fire reduction and suppression.
- Continue fuel reduction in the wildland urban interface.

Rosebud County

High Priority

- Maintain the fuel breaks and reductions, particularly on the western and southern ends of subdivisions.
- Coordinate with Colstrip Parks and Recreation and PPL to remove dead/dying trees from common areas.
- Create fuel breaks and reduce fuels around communities, particularly the City of Colstrip.
- Encourage and provide funding for homeowners in the wildland urban interface to create defensible space from wildfires around their homes and outbuildings using FireWise principles.
- Form a Fire Safe Council with the BLM, USFS, ranchers, fire departments, Rosebud Co. Disaster & Emergency Services, Rosebud Co. commissioners, power companies and others to plan fuel reduction projects on a landscape basis.
- Coordinate fuel reduction opportunities between private landowners and the Custer National Forest, the BLM and the Northern Cheyenne Tribe.
- Solicit more landowner involvement in fuel reduction projects.

Medium Priority

- Encourage utility companies to clear utility right-of-ways of hazardous fuels.

Low Priority

- Replace old road signs with non-combustible reflective road signs.

Stillwater County

High Priority

- Pursue WUI fuel reduction projects in high-risk areas around the county.
- Monitor fuel load, drought stress and vegetation mortality.

Medium Priority

- Jointly develop a fuels reduction project for the major subdivision area (BLM, FS, RFD and private landowners).
- Monitor amount of contracted acreage in CRP.

Treasure County

High Priority

- Use state provided information on insect kill and drought kill for future mitigation projects and response planning.
- Have a state forester inspect trees for insect kill and drought kill.

Medium Priority

- Form a committee consisting of the BLM, MT DNRC, Treasure Co. Fire Dept., Treasure No. DES, Treasure Co. Commissioners, power companies and landowners to plan fuel reduction projects on a landscape basis.
- Encourage and provide funding for homeowners in the wildland urban interface to purchase fire resistant building materials and create defensible space from wildfires around their homes and outbuildings using FireWise principles.
- Create fuel breaks and reductions in all hazard areas but particularly in high hazard areas such as the Hysham Hills and near homes and ranches.

Low Priority

- Minimize impacts to wildlife and other values with public lands fuels mitigation.
- Continue efforts to eradicate weeds and remove brush from public lands, including Howrey Island and Isaac Homestead.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Wheatland County

High Priority

- Implement fuel reduction projects.
- Coordinate with other agencies for implementation of fuels reduction projects in county fire plan.
- Maintain watered landscape (green areas) around towns to serve as firebreak.
- Mow and clean up fuels in all communities.
- Remove abandoned structures in all communities.

Medium Priority

- Coordinate with other agencies for implementation of fuels reduction projects including Deadman's Basin, Snowy Mountain, Musselshell River near Harlowton, Timber Creek church camp, and around Shawmut.

Yellowstone County

Medium Priority

- Older building sprinkler installations.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Big Horn County

High Priority

- Update the "Way of the West" publication that was prepared by the county to inform new and existing residents about what to expect in rural Big Horn County. Include information on wildfire issues and response times.
- Provide information about personal safety in a wildfire situation and distribute via the media and presentations at schools, etc.
- Continue to provide training and extend training for staff and volunteers.
- Develop programs geared to school-age children about fire safety and utilizing techniques to prevent experimentation with fire and arson.
- Provide education on ways to make properties less susceptible to wildfire, understanding wildfire, and role of fire (and/or other disturbance) in long-term land health/productivity.

Medium Priority

- Provide public education about how to reduce post-fire impacts.
- Identify and fund a staff person to provide public education on fire preparedness.

Carbon County

Medium Priority

- Raise awareness of fire danger through an advertising campaign including a series of articles, mailings and billboards.
- Host a Firewise workshop for rural subdivisions in the Red Lodge area.
- Target rural property owners and second home owners by including a fire prevention message with property tax notices.
- Develop and provide a workshop that would qualify for continuing education credits for architects, engineers, and realtors on defensible space and fire wise principles.
- Develop and provide a workshop on defensible space and Firewise principles for the county planning staff and planning board.
- Assist Red Lodge Mountain in replacing wood roofs with metal roofs on four base area buildings, creating defensible space on the south side of the Administration building, and thinning to protect the Palisades quad lift.
- Bury 12 miles of electrical lines in the West Fork of Rock Creek drainage.

Low Priority

- Invite the BNSF to conduct annual briefings and training sessions on response to hazmat carried by the railroad.
- Develop or purchase evacuation pamphlets and distribute to rural residents.

Crow Reservation

High Priority

- Provide education and information to the general public on how to reduce the number of human-caused fires.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Golden Valley County

High Priority

- Provide training for volunteer fire fighters for wildland certification.

Medium Priority

- Implement ordinances to not allow shake shingle roofs in fire-prone areas.

Musselshell County

High Priority

- Educate public on FIREWISE practices.
- Develop FIREWISE programs in communities.
- Provide community fire education regarding fuel reduction projects.

Medium Priority

- Develop or obtain training DVD on wildland firefighting and risk reduction that can be distributed to ranchers and homeowners.

Rosebud County

Medium Priority

- Educate the homeowners on their wildland fire hazard.

Stillwater County

High Priority

- Raise awareness of fire danger through an advertising campaign including a series of articles, mailings and billboards.

Medium Priority

- Develop and provide a workshop that would qualify for continuing education credits for architects, engineers and realtors on defensible space and fire wise principles.
- Educate the public about the benefits of metal roofing.
- Target rural property owners and second homeowners by including a fire prevention message with property tax notices.
- Bury electrical lines where possible.
- Host a Fire Wise workshop for rural subdivisions.
- Develop and provide a workshop on defensible space and fire wise principles for the county planning staff, planning board and fire personnel.

Low Priority

- Develop or purchase evacuation pamphlets and distribute to rural residents.

Treasure County

High Priority

- Familiarize landowners with the local, state, and federal firefighting systems and how they interact.
- Engage landowners in wildfire mitigation, preparedness, and response through a series of meetings throughout the county.
- Provide basic information and training on wildland firefighting and response.

Medium Priority

- Show the Montana Dept. of Natural Resources and Conservation's Eastern Montana Wildfire Awareness Video at a wide variety of local meetings in Treasure County.

Wheatland County

High Priority

- Develop or obtain training DVD on wildland firefighting and risk reduction that can be distributed to ranchers and homeowners.

Medium Priority

- Coordinate with ranches in north portion of county on placement of dry hydrants.

Yellowstone County

High Priority

- Firewise demonstration houses.
- Increase Firewise awareness.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Yellowstone County

Medium Priority

- Wise building practices.

OBJECTIVE 3.4 - Accurately assess and address the current wildland urban interface problems at the subdivision level.

Big Horn County

High Priority

- Develop a building code for fire safety purposes (using the NFPA codes as a starting point).
- Review subdivision applications to make sure they meet fire safety requirements.
- Review and revise as necessary the subdivision regulations to address fire safety needs.
- Work with tribal governments and housing authorities in order that new housing and other developments are built in defensible areas.

Carbon County

High Priority

- Have county attorney provide a training session for chiefs on providing input to subdivision review process.
- Develop regulatory mechanism to ensure that subdivisions are built as approved and fire protection systems are initially and periodically certified.

Medium Priority

- Identify those areas of the county with constructed assets at risk and no physical access. Meet with property owners or subdivision associations to pursue remedies.

Musselshell County

Medium Priority

- Amend existing building codes to apply equally to new single housing construction as it does to subdivisions to minimize risks to firefighters.
- Develop County policy concerning access in moderate to high risk WUI areas where subdivisions are built to insure adequate ingress and egress during wildfire emergencies.
- Develop County policy concerning building materials used in high risk WUI areas on new construction.

Rosebud County

Medium Priority

- Explore ingress and egress options with the homeowners in subdivisions.
- Meet with the Wild Horse and Bascom Subdivisions Homeowners Associations (if active) about subdivision access.

Stillwater County

High Priority

- Have county planning office provide a training session for fire chiefs on providing input to subdivision review process.
- Develop regulatory mechanism to ensure that subdivisions are built as approved and fire protection systems are initially and periodically certified.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Big Horn County

High Priority

- Annually provide a workshop or training session for individuals who may find themselves as first responders to fire.
- Annually review existing 911 system and identify any issues, need for drills/exercises, or staff training.
- Involve all fire response teams (public, private—e.g., for coal mines, oil and gas, etc.) in stakeholder groups and planning for fire response.
- Identify and address problems with access on existing county roads (e.g., such as some county roads in the Pine Ridge area).
- Identify "safe areas" and evacuation plans for each community in the county.

Medium Priority

- Encourage homeowners to work with the fire depts. and other homeowners to provide adequate access.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Big Horn County

Medium Priority

- Make sure that steps to reporting a fire are clear to residents. Review the telephone books annually to ensure that information is correct.
- Public agencies to develop and follow post-fire procedures to reduce impacts.
- Provide information on the access requirements for firefighting equipment to homeowners throughout the county.
- Hold an annual workshop to review past fire season and prepare for upcoming season.

Carbon County

High Priority

- Better communication with the local media about Red Flag warnings.
- Work with commercial providers to improve cellular communications in the Clarks Fork Valley.
- Work with the State of Montana and the Custer National Forest to develop a safe area in the West Fork drainage.
- Develop an evacuation plan for each interface subdivision/area.

Musselshell County

High Priority

- Enhance evacuation procedures associated with wildfire events.
- Develop sheltering strategy.

Medium Priority

- Develop a formal rural Fire Chief position within the County to manage overhead responsibilities across all county fire departments' response areas.

Northern Cheyenne Reservation

High Priority

- New development will be designed and built to ensure access by fire suppression equipment.
- Keep streets in town clear of abandoned vehicles and other items that can restrict access by firefighting equipment.

Medium Priority

- Identify critical roads and bridges in need of improvements for access by firefighting equipment and implement needed changes.

Stillwater County

High Priority

- Better communication with the local media about Red Flag warnings.
- Look for quicker ways to publicize fire danger information.
- Preplan reverse 9-1-1 areas and enter data into system.
- Develop an evacuation plan for each interface subdivision/area.
- Continue to improve the E-911 system.

Medium Priority

- Identify those areas of the county with constructed assets at risk and no physical access. Meet with property owners or subdivision associations to pursue remedies.
- Work with commercial providers to improve cellular communications in the Stillwater Valley.
- Conduct after action analyses for all major incidents or at least one annually by the Fire Council.

Treasure County

Medium Priority

- Use a county road grader for county and private road improvements that will reduce vehicle sparks and improve access for emergency responders.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.6 - Establish mapping or record keeping practices to support fuel management strategies.

Big Horn County

High Priority

- Develop a detailed map of critical infrastructure (e.g., power lines, roads, etc.), locations of fire fighting equipment and infrastructure, water sources, etc., and review and update annually.
- Develop, review, and update annually a roster of contact information for fire fighting resources (both in-county and those available out-of-county), with names of contacts, lists of equipment, and other information useful for firefighting.

Medium Priority

- Identify a GIS technician and other technical assistance in the county to develop, coordinate and update GIS maps and the detailed roster information.

Carbon County

High Priority

- Create a map of the county showing water sources for fire fighting.

Medium Priority

- Identify criteria for fire use allowing natural ignitions to continue burning within parameters.
- Develop goals and projects to return those areas determined desirable to their natural fire regime and manage other lands appropriately.
- Develop desired condition maps, identifying condition class.
- Set up "call-out" data base in cooperation with dispatch center to document the number of responses.
- Report all responses to the state as requested.
- Explore residents' willingness in the two uncovered areas (Piney Creek County District 16-2, and private parcel 141-A) to obtain formal coverage.

Musselshell County

Medium Priority

- Develop GPS database of water sources in County to enhance fire fighting efforts.

Rosebud County

Medium Priority

- Create digital files of local fire perimeters using GPS and GIS technologies.
- Create a countywide database of local wildfires.

Stillwater County

High Priority

- Develop maps of the wildland urban interface areas with safety zones and escape routes.

Medium Priority

- Explore residents' willingness in uncovered areas to obtain formal coverage.
- Report all responses to the state as requested.
- Work on improving "call-out" data base.

Treasure County

Medium Priority

- Put printed copies of road and structure maps in emergency response vehicles.
- Develop a system to replenish the water (i.e., from stock ponds) used in the firefighting efforts.
- Create digital files of local fuel types and conditions.
- Use digital mapping to better outline the hazard areas and conduct exercises.
- Improve road mapping (including private roads) and structure locations.
- Gather GPS coordinates of water supply locations (such as stock ponds).

Yellowstone County

Medium Priority

- Conduct wildland fire mapping.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 4 - Minimize economic impacts of drought.

OBJECTIVE 4.1 - Identify water retention projects that could lessen the effects of drought.

Big Horn County

High Priority

- Identify options/mechanisms for improving water supply.

OBJECTIVE 4.2 - Provide education and incentives for minimizing the effects of drought.

Big Horn County

High Priority

- Provide information to the public about water shortage and water conservation.

Low Priority

- Bring in outside technical expertise.

Northern Cheyenne Reservation

Medium Priority

- Continue public awareness and water conservation measures.

Stillwater County

Medium Priority

- Distribute drought information in welcome packets to new residents.
- Run media spots on drought mitigation.

OBJECTIVE 4.3 - Improve drought monitoring and assessments.

Big Horn County

High Priority

- Identify options/mechanisms to reduce water demand.

Medium Priority

- Host forum to identify and address water supply/use issues.

Crow Reservation

High Priority

- Bring various parties together and begin a dialog on ways to address long-term effects of drought on surface water.
- Participate in other drought-related efforts in the region.
- Identify existing water demands and quantify use by type, including agricultural, community water supplies, needs for wildlife and fisheries.

Northern Cheyenne Reservation

Medium Priority

- Institute a grasshopper control program like Big Horn County.

Stillwater County

High Priority

- Gather drought and water data resources.
- Utilize existing Stillwater County Drought Committee to evaluate and determine if water distribution planning is needed and practical.

Medium Priority

- Monitor and review data regarding vegetation (fuel) moisture.
- Collaborate with US Weather Service and local weather monitoring station operators to assure adequate, county specific drought information is being collected.
- Monitor water well data and groundwater conditions.
- Identify opportunities for water storage.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Big Horn County

Medium Priority

- Continue to test emergency response for dam failure.

Carbon County

High Priority

- Broadcast weather warnings through dispatch.
- Implement E-911, reverse calling.

Medium Priority

- Devise warning system for failure of Cooney Reservoir.
- Maintain network of flood watchers.
- Devise warning system for failure of Glacier Lake Dam

Golden Valley County

Medium Priority

- Install an early warning system on Deadman's Basin Dam to interface with dispatch in Ryegate.
- Provide NOAA weather radios to ranchers downstream from Deadman's Basin Dam and residents in Ryegate.

Northern Cheyenne Reservation

Medium Priority

- Build a bridge to access homes on the other side of Rosebud Creek (near Busby).

Stillwater County

High Priority

- Implement E-911 and implement the reverse calling function.
- Continue to broadcast warning information from the National Weather Service through dispatch.
- Install an automated warning system for failure of Mystic Lake Dam.

Medium Priority

- Maintain network of flood watchers to monitor build up, runoff, and precipitation events.
- Educate potentially affected citizens about warning system for dam failure.

Wheatland County

High Priority

- Provide NOAA weather radios to ranchers downstream from Bair, Martinsdale and Deadman's Basin Dams.

Medium Priority

- Install an early warning system on Bair, Martinsdale and Deadman's Basin Dams to interface with dispatch

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Big Horn County

Medium Priority

- Examine potential impacts of flushing flows to existing and future development along the Big Horn River.

Low Priority

- Identify and implement options to reduce impacts to new and existing development in high hazard flood areas.

Carbon County

High Priority

- Work with FEMA to study floodplain delineations.

Medium Priority

- Procure maps of revised floodplains as appropriate.
- Provide information about building in the floodplain.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Crow Reservation

Medium Priority

- Until other information is available, use the aerial photos of the 1978 flood to locate new development outside of flood-prone areas.

Musselshell County

Medium Priority

- Develop ordinances and residential zoning designed to prevent new construction in floodplain.

Northern Cheyenne Reservation

High Priority

- Continue to use flood plain maps in siting new development.

Stillwater County

Medium Priority

- Make information available to the public about building in the floodplain.

Yellowstone County

Medium Priority

- Resolution of Clarks Camp problem.
- Floodplain mapping.
- New floodplain regulations.

Low Priority

- Repetitive loss structure buyout.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Big Horn County

High Priority

- Assess and address storm drainage and flood issues along roadways in the county.
- Assess and address storm drainage issues in Lodge Grass.
- Assess and address storm drainage issues in Hardin.

Low Priority

- Identify and address potential impacts of flooding on water supply and waste water systems.

Carbon County

Medium Priority

- Maintain sand bag supplies.
- Develop a storm drainage plan for Red Lodge.
- Remove old bridge abutments in Rock Creek to prevent flooding.
- Address drainage problem at Cedarwood Villa Nursing Home.

Crow Reservation

High Priority

- Address storm drainage issues in downtown Lodge Grass.
- Assess and address need for storm drainage improvements in Crow Agency and other communities.
- Identify and address blockages caused by beaver, downed trees, debris, etc. in Lodge Grass and other communities on the Reservation.

Medium Priority

- Work with BIA, Big Horn County, Montana Dept of Transportation, Crow Tribal Public Works to identify storm drainage issues for roads.

Golden Valley County

Medium Priority

- Install larger culverts/drainage structures where repetitive flood damage occurs.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Musselshell County

Medium Priority

- Update dike around city water supply.
- Anchor fuel oil tanks at residences in floodplain.
- Develop ice jam control procedures.
- Remove debris and logs within the Musselshell River drainages

Low Priority

- Elevate highway in south portion of county (access to Billings).

Rosebud County

Medium Priority

- Regularly clean out culverts throughout the county.
- Explore drainage and culvert needs on the road between Ashland and Birney.
- Provide homeowners with water quality testing resources to identify well contamination after a flood event.
- Educate the residents of Rosebud and Hathaway on the potential for well contamination during Yellowstone River flood events.

Stillwater County

High Priority

- Address drainage issue at Montana Silversmiths.

Medium Priority

- Develop a storm drainage plan for Columbus.
- Maintain sand bag supplies at each road district.

Treasure County

High Priority

- Upgrade and maintain the electric utility's river crossing structures.

Low Priority

- Maintain culvert capacities by regularly clearing the culverts of debris.
- Identify locations for new culvert installations.
- Evaluate culverts throughout the county for flood capacities.
- Replace hazardous culverts in flood prone areas.

Wheatland County

High Priority

- Remove debris and logs in waterways to prevent flooding.

Medium Priority

- Construct structural projects in Harlowton to update dikes.
- Consider structural project in Shawmut where flood waters overtop railroad grade and impact town properties.

Yellowstone County

High Priority

- Highway 87/Alkali Creek crossing improvement.

Medium Priority

- Highway 3 storm water runoff management.
- Storm drain in Laurel (refer to mitigation plan January 22, 2002).
- Reduce Rimrock Road and Molt Road flooding.
- Billings west end retention pond/diversion channel.

Low Priority

- Reduce Echo Canyon/Zephyr Lane flooding.
- Feasibility study for irrigation canal unloading structures/linear parks.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.4 - Increase the public awareness of flood mitigation.

Carbon County

Medium Priority

- Invite the NWS to make a presentation on flooding.
- Educate citizens about dam failure warning system.

Crow Reservation

Medium Priority

- Make sure that the DES office has copies of the Flood Hazard Boundary maps and aerial photos.

Musselshell County

Medium Priority

- Educate public on flood prevention and protection measures.

Stillwater County

Medium Priority

- Invite the National Weather Service to give a presentation on flooding.

Yellowstone County

High Priority

- Increase floodplain awareness.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Big Horn County

High Priority

- Work to complete the FEMA FIRM floodplain maps for the entire county.

Crow Reservation

Medium Priority

- Assess the benefits and costs of participation and make decision on whether to participate in the National Flood Insurance program.
- Invite FEMA representative(s) to present the National Flood Insurance program to the Crow Tribe.

Golden Valley County

Medium Priority

- Conduct elevation survey of buildings in Ryegate subject to flooding.

Musselshell County

High Priority

- Educate public on flood insurance.

Rosebud County

Medium Priority

- Update county floodplain mapping for the National Flood Insurance Program.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Big Horn County

Medium Priority

- Increase awareness among smaller dam owners of maintenance and upkeep needs.

Golden Valley County

Medium Priority

- Install movement sensors on face of Deadman's Basin Dam to detect pending failure.

Wheatland County

Medium Priority

- Install movement sensors on face of Bair, Martinsdale and Deadman's Basin Dams to detect pending failure.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Yellowstone County

Medium Priority

- 12-Mile Creek- Dam failure on Box Spring Road.

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Carbon County

High Priority

- Maintain shelter agreements with the American Red Cross.
- Pursue improved cellular communications in Clarks Fork Valley.
- Develop a shelter plan for stranded individuals.

Medium Priority

- Publish county snow removal priorities annually.
- Develop a list of snow removal equipment in the county.
- Purchase back-up generators for shelter locations.
- Purchase back-up generators on trailers to be cached.
- Implement an agreement with Wyoming DOT for snow removal.
- Assist utilities in snow removal to restore power.
- Implement an agreement with Park County, WY for snow removal.
- Support preparation of utility Emergency Restoration plans.
- Utilize new communications trailer.
- Add a repeater at Bridger.

Crow Reservation

High Priority

- Coordinate with all jurisdictions responsible for roads on or across the reservation to identify critical snow plow routes.
- Establish methodology for ensuring snow routes are plowed and which entity will have primary responsibility on which routes.

Medium Priority

- Identify how to improve access to livestock during snow snowstorms.
- Trim dead and diseased limbs from large trees around city.

Golden Valley County

High Priority

- Obtain NOAA weather radios for critical facilities.

Medium Priority

- Obtain generators for schools to maintain power supply during winter.

Musselshell County

High Priority

- Provide NOAA weather radios for county residents at a reduced price.
- Obtain NOAA weather radios for critical facilities.

Medium Priority

- Coordinate with utility company for enhanced infrastructure in County to include shorter span distances between utility poles.
- Obtain portable generators for schools.
- Install pigtail connectors at schools to accommodate portable generators.

Northern Cheyenne Reservation

High Priority

- Roads should be cleared of snow (with priority for evacuation routes, main travel routes).

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Treasure County

High Priority

- Upgrade and maintain the electric distribution and transmission system for snow and wind resistance.

Wheatland County

Medium Priority

- Obtain generators for emergency shelters.
- Obtain cots, blankets and pillows for emergency shelters.
- Obtain generator for city complex in Judith Gap.
- Obtain NOAA weather radios for roadside cafes and bars for motorists traveling through the area.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Carbon County

High Priority

- Educate people about shelter plan.
- Continue to issue storm warnings.

Medium Priority

- Invite NWS to make school presentations.
- Distribute winter storm information to new residents.

Low Priority

- Media spots on winter survival.

Crow Reservation

High Priority

- Share snow route information with the public.

Medium Priority

- Target severe winter weather education programs for the young.
- Involve schools in severe winter weather awareness program for the young.
- Work with landowners and others to identify needs and best mechanisms to address reduction of impacts to livestock from severe winter weather.

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.1 - Increase community capabilities to mitigate summer weather hazards.

Carbon County

Medium Priority

- Purchase weather radios.
- Enforce Red Lodge building codes.
- Sponsor weather spotter training.
- Assess tree hazards and contract a faller.

Golden Valley County

Medium Priority

- Obtain shatterproof film for windows at critical facilities.

Musselshell County

Medium Priority

- Install protective film on windows at critical facilities to prevent shattering of glass.

Stillwater County

High Priority

- Host an educational program for local architects, engineers, and contractors on building standards and materials for hail events.

Medium Priority

- Create communication systems with all infrastructure systems at risk.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.1 - Increase community capabilities to mitigate summer weather hazards.

Stillwater County

Medium Priority

- Make a bulk purchase of weather radios for public buildings and households.

Wheatland County

High Priority

- Obtain safety film for windows to prevent shattering of glass.

OBJECTIVE 7.2 - Increase public awareness of ways to mitigate summer weather hazards.

Carbon County

Medium Priority

- Educate public about utility R-O-W.
- Host program on building material and standards for wind events.
- Brochures for building material and practices to avoid wind damage.
- Educate the public to report trees down on power lines.

Stillwater County

Medium Priority

- Gather and distribute information about Crop Hail Insurance Program.

Yellowstone County

Medium Priority

- Increase high winds awareness.

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Carbon County

Medium Priority

- Obtain hazmat training.
- Assess past hazmat spills.

Crow Reservation

High Priority

- Review and update Tribal Hazardous Materials Response Plan and relevant portions of EOP as needed.
- Continue to secure training and necessary equipment for hazardous materials responders-move level of training up from "awareness" to operations and use of Class C suits.

Golden Valley County

Medium Priority

- Consider emergency warning system at Cushman Crossing that interfaces with dispatch in Lavina.

Musselshell County

High Priority

- Develop communication plan for hazardous material emergencies.

Medium Priority

- Plan alternate evacuation routes for instances when future coal trains block intersections.
- Provide hazardous material training to emergency responders.
- Enhance evacuation procedures associated with highway incidents and future railroad.
- Develop an emergency transportation plan that considers key roadways and future railroad intersections.
- Develop and improve hazardous material response strategies

Northern Cheyenne Reservation

Medium Priority

- Conduct field training and exercises to ensure timely response to hazardous materials events.
- Continue to secure training and necessary equipment for hazardous materials responders.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Northern Cheyenne Reservation

Medium Priority

- Update Tribal Hazardous Materials Plan (Tribal Fire Dept.).

Stillwater County

Medium Priority

- Conduct an assessment of past hazardous material spills and analyze the type, location and cause. Determine whether any action is needed in response.
- Continue to obtain and offer training for responders in how to respond to those materials being transported through the county.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Carbon County

Medium Priority

- Obtain hazardous materials list from BNSF.

Crow Reservation

High Priority

- Identify pipelines across reservation and work with companies on how to avoid spills and how to address them when accidents happen.
- Work with Burlington Northern-Santa Fe Railroad to identify major causes of train derailments and potential mitigation measures.
- Work with Montana Dept. of Transportation, BIA, Big Horn County to assess significant problem areas for vehicle accidents and means to address them.

Musselshell County

Medium Priority

- Develop mitigation measures for the developing coal mine and subsequent shipping railroad.

Northern Cheyenne Reservation

High Priority

- Establish comprehensive tribal traffic regulations for the Reservation.

Medium Priority

- Get more law enforcement on the highways to enforce speed limits.

Stillwater County

Medium Priority

- Request a list of the top 25 hazardous materials being transported through the county on the railroad from Montana Rail Link.

OBJECTIVE 8.3 - Support hazardous materials regulations and agreements.

Carbon County

High Priority

- Review agreements for hazmat response.

Medium Priority

- Update/execute new hazmat response agreements as needed.

Crow Reservation

High Priority

- Improve communication and coordination among the various responders (e.g., BIA, HIS, National Park Service).
- Improve coordination with advanced hazardous materials teams that need to be called in for hazardous materials events that are beyond the certified capabilities of the local tribal team.

Golden Valley County

Medium Priority

- Initiate dialog with railroad on measures to reduce derailments.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.3 - Support hazardous materials regulations and agreements.

Northern Cheyenne Reservation

Medium Priority

- Improve coordination with advanced hazardous materials teams that need to be called in for hazardous materials events that are beyond the certified capabilities of the local tribal team.

Stillwater County

High Priority

- Review agreements for hazmat response assistance.

Medium Priority

- Update or execute new agreements as needed.

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Carbon County

High Priority

- Develop education campaign about benefits of immunization.
- Continue with infectious disease protection education.
- Develop mosquito control.

Medium Priority

- Improve communications between health officials in county.
- Sponsor animal disease awareness training.
- Sponsor veterinarian continuing education.
- Educate the public about proper disposal of animal carcasses.
- Educate officials about health planning.
- Coordination with Dept. of Health and Human Services for health officer during incident.
- Raise public awareness about animal disease resources.
- Order wall charts for situation assessment.
- Identify one or more locations in county for mass carcass disposal.
- Develop protocol for mass carcass disposal.
- Form an EPI Team in the county.

Northern Cheyenne Reservation

High Priority

- Implement recommendations made by the EPA in Sanitary Surveys of public water supplies.

Medium Priority

- Continue to address remediation of underground fuel storage tank leaks.

Stillwater County

High Priority

- Develop mosquito control.
- Develop education campaign about benefits of immunization.
- Continue with infectious disease protection education.

Medium Priority

- Form an EPI Team in the county.
- Sponsor veterinarian continuing education.
- Improve communications between health officials in county.
- Educate officials about health planning.
- Coordination with Dept. of Health and Human Services for health officer during incident.
- Raise public awareness about animal disease resources.
- Order wall charts for situation assessment.
- Identify one or more locations in county for mass carcass disposal.
- Educate the public about proper disposal of animal carcasses.

LOCAL MITIGATION PROJECTS

DES DISTRICT 5

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Stillwater County

Medium Priority

- Sponsor animal disease awareness training.
- Develop protocol for mass carcass disposal.

GOAL 11 - Encourage mitigation of potentially devastating but historically less frequent hazards.

OBJECTIVE 11.1 - Prevent losses from acts of terrorism, violence and civil unrest.

Yellowstone County

High Priority

- Enemy attack/terrorism plan update.

Medium Priority

- Develop school violence prevention.



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

APPENDIX G

DISTRICT 6 DOCUMENTATION

Meeting Sign-in Sheets
Meeting Minutes
Survey Results
Mitigation Projects

NORTHEAST MONTANA JURISDICTIONS

Daniels County
Fergus County
Fort Peck Reservation
Judith Basin County
Petroleum County
Phillips County
Roosevelt County
Sheridan County
Valley County

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Sign-in Sheets



MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/29/07

LOCATION: Wolf Point - District 6

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digrindakis	Tetra Tech		Daphne.Digrindakis@tetratech.com
Richard D. Seiden	Valley County DES	100 miles	rseiden@cco.valley.mt.us 406-228-2850
Tanja Fransen	NWS Glasgow	100 miles	tanja.fransen@nwsa.gov
Staci Green	Herald-News	0	605-3-2222
Dana Buckles	Fort Belk Tribes / TERC	48	Shungaska@yahoo.com 768-5322
Linda Connor	FPT - OEP	48	lweeks@nemont.net
Deb Madison	" "	48	zhorses@nemont.net
Kent Atwood	MT - DES	600	Katwood@mt.gov
Mary Nyhus			danieloph@nemont.net
Sharon Switcheel	Co. Health Dept. -		sharon@mt.gov
Nancy Demore	RCHD		nancy@mt.gov
Sharon Switcheel	RCHD		sharon@mt.gov

Meeting State Time: 10:15

Meeting End Time: 1:00

MONTANA STATE PRE-DISASTER MITIGATION PLAN UPDATE MEETING

DATE: 3/30/07

LOCATION: Lewistown - Dist. 6

Name	Affiliation/Title	Miles Traveled Round Trip to Attend Meeting	E-mail Address or Phone No.
Daphne Digirindakis	Tetra Tech		Daphne Digirindakis@tetra.tech.com
Berry Brzezinski	PJO Fergus Co.		news@KERO-KLHM.COM
KENT ATWOOD	MT - DES	700	Katwood@mt.gov
John Jensen	Fergus Co Commissioner		Commissioners@co.fergus.mt.us
Cheri Kilby	Fergus Co DES		des@co.fergus.mt.us

Meeting State Time: 9:10

Meeting End Time: 11:00

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Meeting Minutes

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Thursday, March 29, 2007

Time: 10:10 am – 1:00 pm

Place: Wolf Point, Montana

Meeting Attendance:

Richard D. Seilou, Valley County DES

Tanja Fransen, NWS Glasgow

Staci Green, Herald News

Dana Buckles, Fort Peck Tribes – Tribal Emergency Response Committee

Linda Connor, Fort Peck Tribes – Office of Environmental Protection

Deb Madison, Fort Peck Tribes – Office of Environmental Protection

Mary Nyhus

Darlene Twitchell, County Health Department

Nancy Demoro, Roosevelt County Health Department

Leslie Boor, Roosevelt County Health Department

Perry Brzezinski, PIO Fergus County

John Jenson, Fergus County Commissioner

Cheri Kilby, Fergus County DES

Kent Atwood, State of Montana – DES

Larry Akers, Contractor

Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 6

Meeting Discussion on Hazards Affecting District 6

Possible addition of biological hazard. Participants did not feel strongly about adding this as a hazard but did express concern over Shignella bacteria and Norovirus. Children in Valley County have had a lot of illness recently. It was suggested that the Dept. of Agriculture and Public Health be consulted at the April 19th Stakeholder meeting and possibly insert a biological hazard into the State PDM Plan.

Participants ranked the top three hazards for District 6 as follows: 1. Winterstorms, 2. Wildfire and Drought (tied for second), 3. Severe Thunderstorms, Hail, Wind and Tornadoes.

Counties also noted that wildfire and drought are related.

ASSESSMENT OF HAZARDS – DISTRICT 6

Drought

Judith Basin – Change Low to Medium

Fergus – No Approved Plan

Petroleum – Change Medium to High
Phillips – Change Low to High
Valley – Change Low to Medium
Daniels – Change Not Assessed to Medium
Sheridan – Change Low to Medium
Roosevelt – Change Low to Medium
Fort Belknap Reservation – Change from Low to High (during Havre meeting)
Fort Peck Reservation – Change Low to Medium

Participants noted that all counties are rated low risk for drought except Petroleum County which is rated medium. Should drought be upgraded to high risk? Sheridan and Roosevelt counties are definitely experiencing drought and should be upgraded to medium risk. Discussion concluded with recommendation that all counties in District 6 be upgraded to medium risk. However, Phillips and Petroleum are thought to be at high risk for drought as these counties have experienced wildfires in the recent past.

It was noted that drought assessment should be based upon an examination of climate data. People may perceive a drought as high when the climate data indicates a moderate drought.

Earthquake

Judith Basin – Low
Fergus – No Approved Plan
Petroleum – Not Assessed
Phillips – Low
Valley – Low
Daniels – Low
Sheridan – Change Low to Medium
Roosevelt – Low
Fort Belknap Reservation – Low
Fort Peck Reservation – Low

All counties are correct with a low risk rating. The exception is Sheridan County where a fault line produced a 4.0 earthquake. This county could be upgraded to medium.

Flood

Judith Basin – High
Fergus – No Approved Plan
Petroleum – Medium
Phillips – High
Valley – High
Daniels – Change High to Medium
Sheridan – High
Roosevelt – High
Fort Belknap Reservation – High
Fort Peck Reservation – High

It was noted that Daniels County has had some flooding but generally no people are at risk so the rating should be changed to medium. Roosevelt County has Brockton flooding issues and Valley and Roosevelt (north of Frazier) counties have had flash floods. Additionally, the Milk River has had ice jams and flooding. However, there are not a lot of people to affect a positive benefit-cost analysis.

Hazardous Material Incident

Judith Basin – High
Fergus – No Approved Plan
Petroleum – Low
Phillips – High
Valley – Medium
Daniels – Medium
Sheridan – Medium
Roosevelt – Change Medium to High
Fort Belknap Reservation – Medium
Fort Peck Reservation – Change Medium to High

Participants noted that Judith Basin and Phillips counties are rated high risk for this hazard while the remaining counties are rated medium. Fort Peck Reservation and Roosevelt County should probably be rated high risk as Poplar has a huge plume of oily salt water causing groundwater contamination. The plume is moving about three feet a day towards a Poplar aquifer of 40-60 ft deep. Can the county/tribes get a Community Block Development Grant or Dry Prairie Grant to address this matter? It was suggested that a possible PDMC project, jointly with the Fort Peck Tribes and Roosevelt County, would develop a backup critical infrastructure public water source (from the Missouri River) for Poplar. The project would be drought-related, not a hazardous material incident project.

Landslide

Judith Basin – Not Assessed
Fergus – No Approved Plan
Petroleum – Not Assessed
Phillips – Not Assessed
Valley – Not Assessed
Daniels – Not Assessed
Sheridan – Not Assessed
Roosevelt – Not Assessed
Fort Belknap Reservation – Not Assessed
Fort Peck Reservation – Not Assessed

Counties did not suggest any changes for this hazard.

Severe Thunderstorms, Hail, Wind and Tornadoes

Judith Basin – High

Fergus – No Approved Plan
Petroleum – High
Phillips – High
Valley – High
Daniels – High
Sheridan – High
Roosevelt – High
Fort Belknap Reservation – Change Medium to High (during Cut Bank meeting)
Fort Peck Reservation – High

Participants noted that the Fort Belknap risk rating should be upgraded to high. District 6 has experienced many severe summer weather events. In June 2005, heavy rain washed out bridges in Valley and McCone County. In July 2005, severe wind blew trains off tracks, primarily in Roosevelt County. In May, 2006, Horse Creek overflowed and caused flooding in McCone County. Additionally, the district has experienced many severe hail events. It was suggested that information be gathered from the Storm Events database and inserted into the State PDM Plan.

Terrorism and Violence

Judith Basin – Low
Fergus – No Approved Plan
Petroleum – Not Assessed
Phillips – Change Low to Medium
Valley – Medium
Daniels – Medium
Sheridan – Medium
Roosevelt – Medium
Fort Belknap Reservation – Low
Fort Peck Reservation – Medium

It was noted that Phillips County has a high risk rating for Hazardous Material Incident but a low risk rating for Terrorism and Violence. Participants found this strange as it seems the high volume of traffic crossing the Canadian border would make Phillips County susceptible to terrorism and violence. Phillips County should upgrade their risk rating to medium for this hazard. Other possible targets for terrorism and violence in District 6 include a major pipeline running through Daniels and Roosevelt counties and all railroad and highway transportation corridors.

Volcanic Eruption

Judith Basin – Change Not Assessed to Low
Fergus – No Approved Plan
Petroleum – Low
Phillips – Change Not Assessed to Low
Valley – Change Not Assessed to Low
Daniels – Change Not Assessed to Low
Sheridan – Change Not Assessed to Low

Roosevelt – Change Not Assessed to Low
Fort Belknap Reservation – Change Not Assessed to Low
Fort Peck Reservation – Change Not Assessed to Low

Only concern discussed for this hazard is the Yellowstone caldera. District 6 is on the fringe of the caldera and could receive some ashfall. All counties in the district should be upgraded to low risk.

Wildfire

Judith Basin – High
Fergus – No Approved Plan
Petroleum – High
Phillips – High
Valley – High
Daniels – High
Sheridan – High
Roosevelt – High
Fort Belknap Reservation – High
Fort Peck Reservation – High

No changes required as risk ratings seem correct.

Winterstorms

Judith Basin – High
Fergus – No Approved Plan
Petroleum – High
Phillips – High
Valley – High
Daniels – High
Sheridan – High
Roosevelt – High
Fort Belknap Reservation – High
Fort Peck Reservation – High

Participants did not suggest any changes for this hazard.

ASSESSMENT OF STATE GOALS – DISTRICT 6

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Wildfire is a high priority and the counties felt it should be ranked above flooding.

Goal 5: Reduce potential earthquake losses in Western Montana.

Goal 6: Minimize economic impacts of drought.

Participants stated that drought has a higher priority goal than earthquakes or flooding and should be moved up to reflect its high priority.

Goal 7: Reduce impacts from severe winter weather.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

Counties felt that Severe Thunderstorms, Hail, Wind and Tornadoes should be separated from Goal 8 and be an individual goal.

OTHER COMMENTS

Fort Peck Reservation is concerned about housing growth north of Poplar. This is the area where a large plume of oily salt water has caused groundwater contamination.

Participants also discussed a potential acquisition project that concerns an auto salvage yard in the floodplain of the Poplar River near Poplar. The owner does not salvage toxic materials from the cars and the yard is located in an area of high flood risk.

Counties in District 6 have completed the following projects presented in their local PDM plans:

- Sheridan, Roosevelt, Richland and Petroleum counties and the Fort Peck Reservation are now Stormready Communities (Dawson and Prairie are working on this).
- A total of 250 weather radios have been distributed across Roosevelt County and the Fort Peck Reservation.
- A camera has been placed on Fort Peck Dam to help warn boaters to get off the lake during high winds.
- Install a repeater in Opheim.
- The cities of Brockton, Frazer, Poplar and Wolf Point are now in the National Flood Insurance Program.
- Obtain sirens for Frazer and Ft. Kipp.
- Fences have been installed around water supplies in Frazier.

The counties discussed the following projects that need to be completed:

- Distribute weather radios to all public schools (all across Montana as well).
- Put up MDT road sign in an area just east of Brockton that has a serious flood risk. The road sign would read “Turn Around-Don’t Drown”.
- It was observed that the Drought Advisory Committee bought several drought sensors. Could the State Plan make a PDM project or strategy out of this to accurately collect drought data?

Discussion also focused on the identification of any State owned land or facilities that needed mitigation. Culbertson has a FWP building that is at risk for flooding at the 17 ft flood stage; however, it was noted that the building may be protected by the Fort Peck Dam. Additionally, an unnamed, new state park was identified for possible fuel mitigation.

**UPDATE TO THE STATE OF MONTANA PDM
PLAN AND HAZARD ASSESSMENT
PUBLIC MEETING MINUTES**

Date: Friday, March 30, 2007

Time: 9:10 am – 11:00 am

Place: Lewistown, Montana

Meeting Attendance:

Perry Brzezinski, PIO Fergus County
John Jenson, Fergus County Commissioner
Cheri Kilby, Fergus County DES
Kent Atwood, State of Montana – DES
Larry Akers, Contractor
Daphne Digrindakis, Contractor

HAZARDS AFFECTING DISTRICT 6

Meeting Discussion on Hazards Affecting District 6

Lewistown participants felt that the top three hazards for Fergus County were as follows:

1. Drought and Wildfire (tied for first), 2. Winterstorms, 3. Flooding

Possible addition of a communicable diseases hazard. Fergus County felt that with their livestock and agricultural industry, the addition of this hazard is appropriate.

Participants also discussed growth in Fergus County. Over the last 15 years, 40-70 lots per year have been developed. However, last year, the number jumped to over 430 lots. The lots are being developed primarily in risk areas like the WUI and in/or near the floodplains and inundation areas. In the town of Moore, the PeaVey Corp. is upgrading to a 110 car loading facility that will possibly block both entrances into town.

ASSESSMENT OF HAZARDS – DISTRICT 6

Drought

Judith Basin – Change Low to Medium (during Wolf Point meeting)
Fergus – Change No Approved Plan to Medium
Petroleum – Change Medium to High (during Wolf Point meeting)
Phillips – Change Low to High (during Wolf Point meeting)
Valley – Change Low to Medium (during Wolf Point meeting)
Daniels – Change Not Assessed to Medium (during Wolf Point meeting)
Sheridan – Change Low to Medium (during Wolf Point meeting)
Roosevelt – Change Low to Medium (during Wolf Point meeting)
Fort Belknap Reservation – Change from Low to High (during Havre meeting)
Fort Peck Reservation – Change Low to Medium (during Wolf Point meeting)

Fergus County felt that the northern half of the county is more drought affected than the southern half; the areas are actually split along the township lines. Participants suggested that the County should be rated as medium risk for drought but would like confirmation of this rating during the pending PDM Plan process.

Earthquake

Judith Basin – Low

Fergus – Change No Approved Plan to Low

Petroleum – Not Assessed

Phillips – Low

Valley – Low

Daniels – Low

Sheridan – Change Low to Medium (during Wolf Point meeting)

Roosevelt – Low

Fort Belknap Reservation – Low

Fort Peck Reservation – Low

Representatives from Fergus County suggested a low risk rating for earthquakes and requested that this rating be confirmed during the pending PDM Plan process.

Flood

Judith Basin – High

Fergus – Change No Approved Plan to Medium

Petroleum – Medium

Phillips – High

Valley – High

Daniels – Change High to Medium (during Wolf Point meeting)

Sheridan – High

Roosevelt – High

Fort Belknap Reservation – High

Fort Peck Reservation – High

Fergus participants noted that the town of Moore may have a flood problem due to undersized culverts. There was some flooding last year but it was not significant as the county is in a drought cycle. Fergus County and the Spring Creek area have mitigation work in process and many of the problems in the County now appear to be contained. A recent tabletop exercise that examined failure of the Eastport Dam indicated that a large group of homes on the way to Lewistown are in the inundation area. Participants felt that it was difficult to speculate on whether growth is occurring in Fergus County. A medium risk rating was suggested for flooding with confirmation of rating to be obtained at pending PDM Plan process.

Hazardous Material Incident

Judith Basin – High

Fergus – Change No Approved Plan to High

Petroleum – Low

Phillips – High
Valley – Medium
Daniels – Medium
Sheridan – Medium
Roosevelt – Change Medium to High (during Wolf Point meeting)
Fort Belknap Reservation – Medium
Fort Peck Reservation – Change Medium to High (during Wolf Point meeting)

Fergus County has a lot of concerns with this hazard. Concern is focused not so much on the railroad but on the major pipelines and transportation corridors (roads) that run through the county. Missile silos may not be a target for terrorists but the large population centers probably are. Overall, Montana probably has low risk for this hazard due to the state's low density population. However, Fergus County felt that with their transportation corridors and larger population centers, they are at high risk for a hazardous material incident. This rating will be confirmed at pending PDM Plan process.

Landslide

Judith Basin – Not Assessed
Fergus – Change No Approved Plan to Low
Petroleum – Not Assessed
Phillips – Not Assessed
Valley – Not Assessed
Daniels – Not Assessed
Sheridan – Not Assessed
Roosevelt – Not Assessed
Fort Belknap Reservation – Not Assessed
Fort Peck Reservation – Not Assessed

Fergus County felt that a low risk rating for landslides is appropriate. There are problems in Arrow Creek, west of Denton; the slide area north of Bohemian Corners; and the new road on Clagget Hill, north of Winifred. This type of hazard appears to be fairly localized to the area north of the breaks with transportation corridors causing disruption.

Severe Thunderstorms, Hail, Wind and Tornadoes

Judith Basin – High
Fergus – Change No Approved Plan to High
Petroleum – High
Phillips – High
Valley – High
Daniels – High
Sheridan – High
Roosevelt – High
Fort Belknap Reservation – Change Medium to High (during Cut Bank meeting)
Fort Peck Reservation – High

Fergus County participants felt that a high risk rating is correct.

Terrorism and Violence

Judith Basin – Low

Fergus – Change No Approved Plan to Low

Petroleum – Not Assessed

Phillips – Change Low to Medium (during Wolf Point meeting)

Valley – Medium

Daniels – Medium

Sheridan – Medium

Roosevelt –Medium

Fort Belknap Reservation – Low

Fort Peck Reservation – Medium

A low risk rating was proposed by Fergus County with confirmation of this rating during the pending PDM Plan process.

Volcanic Eruption

Judith Basin – Change Not Assessed to Low (during Wolf Point meeting)

Fergus – Change No Approved Plan to Low

Petroleum – Low

Phillips – Change Not Assessed to Low (during Wolf Point meeting)

Valley – Change Not Assessed to Low (during Wolf Point meeting)

Daniels – Change Not Assessed to Low (during Wolf Point meeting)

Sheridan – Change Not Assessed to Low (during Wolf Point meeting)

Roosevelt – Change Not Assessed to Low (during Wolf Point meeting)

Fort Belknap Reservation – Change Not Assessed to Low (during Wolf Point meeting)

Fort Peck Reservation – Change Not Assessed to Low (during Wolf Point meeting)

Representatives from Fergus County discussed the possibility of the Yellowstone caldera and ashfall being a concern for the county. A low risk rating, like the rest of District 6, was proposed for Fergus County.

Wildfire

Judith Basin – High

Fergus – Change No Approved Plan to High

Petroleum – High

Phillips – High

Valley – High

Daniels – High

Sheridan – High

Roosevelt – High

Fort Belknap Reservation – High

Fort Peck Reservation – High

Fergus County felt that a high risk rating is appropriate.

Winterstorms

Judith Basin – High
Fergus – Change No Approved Plan to High
Petroleum – High
Phillips – High
Valley – High
Daniels – High
Sheridan – High
Roosevelt – High
Fort Belknap Reservation – High
Fort Peck Reservation – High

A high risk rating for winterstorms was proposed for Fergus County.

ASSESSMENT OF STATE GOALS – DISTRICT 6

Goal 1: Maximize the use of mitigation actions that prevent losses from all hazards.

Goal 2: Increase State's capability to provide mitigation opportunities.

Goal 3: Mitigate the potential loss of life and property from flooding.

Goal 4: Reduce the community impacts of wildland and rangeland fires.

Fergus County felt that an important objective is to work with the BLM and USFS on fuels reduction projects. Specifically, they suggested a possible fuels reduction mitigation project on USFS land around Crystal Lake.

Goal 5: Reduce potential earthquake losses in Western Montana.

Goal 6: Minimize economic impacts of drought.

Fergus County thinks that Drought and Wildfire, followed by flooding, should be a higher priority goal above earthquakes.

Goal 7: Reduce impacts from severe winter weather.

Goal 8: Encourage mitigation of potentially devastating but historically less frequent hazards.

Possible landslide mitigation project in the northern part of the county.

OTHER COMMENTS

Representatives from Fergus County asked if it was possible to get their PDM Plan incorporated into the State PDM Plan update as their plan may not be ready to submit to the State in mid-November. The State and Contractor agreed to figure out a way to get Fergus County draft information into the State Plan. A second issue discussed was how to get local plan updates (annual/biannual) into the State PDM Plan (interactive) document.

Fergus County felt that State goals should establish which districts are concern areas for each hazard. For example, districts 1 and 3 would be an area of concern for earthquakes.

Additionally, Fergus County does not have a list of mitigation projects yet but the county will look to neighboring plans (like districts 2 and 5) for ideas.

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

On-Line Survey Results

What jurisdiction type do you represent?

	Response Percent	Response Count
Federal <input type="checkbox"/>	8.3%	1
State <input type="checkbox"/>	0.0%	0
County <input type="checkbox"/>	75.0%	9
Tribal <input type="checkbox"/>	8.3%	1
Public Utility <input type="checkbox"/>	8.3%	1
General Public <input type="checkbox"/>	0.0%	0
Other (please specify) <input type="checkbox"/>	0.0%	0
answered question		12
skipped question		0

What County/Tribal Community do you represent or as a private citizen where do you live?

	Response Percent	Response Count
Blackfeet <input type="checkbox"/>	0.0%	0
Crow <input type="checkbox"/>	0.0%	0
Flathead <input type="checkbox"/>	0.0%	0
Fort Belknap <input type="checkbox"/>	0.0%	0
Fort Peck <input type="checkbox"/>	8.3%	1
Northern Cheyenne <input type="checkbox"/>	0.0%	0
Rocky Boy's <input type="checkbox"/>	0.0%	0
Beaverhead <input type="checkbox"/>	0.0%	0
Big Horn <input type="checkbox"/>	0.0%	0
Blaine <input type="checkbox"/>	0.0%	0
Broadwater <input type="checkbox"/>	0.0%	0
Carbon <input type="checkbox"/>	0.0%	0
Carter <input type="checkbox"/>	0.0%	0
Cascade <input type="checkbox"/>	0.0%	0
Chouteau <input type="checkbox"/>	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Custer	0.0%	0
Daniels	8.3%	1
Dawson	0.0%	0
Deer Lodge	0.0%	0
Fallon	0.0%	0
Fergus	33.3%	4
Flathead	0.0%	0
Gallatin	0.0%	0
Garfield	0.0%	0
Glacier	0.0%	0
Golden Valley	0.0%	0
Granite	0.0%	0
Hill	0.0%	0
Jefferson	0.0%	0
Judith Basin	8.3%	1
Lake	0.0%	0
Lewis And Clark	0.0%	0
Liberty	0.0%	0
Lincoln	0.0%	0
Madison	0.0%	0
McCone	0.0%	0
Meagher	0.0%	0
Mineral	0.0%	0
Missoula	0.0%	0
Musselshell	0.0%	0
Park	0.0%	0
Petroleum	8.3%	1
Phillips	0.0%	0
Pondera	0.0%	0
Powder River	0.0%	0
Powell	0.0%	0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Prairie	0.0%	0
Ravalli	0.0%	0
Richland	0.0%	0
Roosevelt	8.3%	1
Rosebud	0.0%	0
Sanders	0.0%	0
Sheridan	8.3%	1
Silver Bow	0.0%	0
Stillwater	0.0%	0
Sweet Grass	0.0%	0
Teton	0.0%	0
Toole	0.0%	0
Treasure	0.0%	0
Valley	16.7%	2
Wheatland	0.0%	0
Wibaux	0.0%	0
Yellowstone	0.0%	0
Other	0.0%	0
answered question		12
skipped question		0

Have you seen or read the State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment.		
	Response Percent	Response Count
Yes	41.7%	5
No	58.3%	7
answered question		12
skipped question		0

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

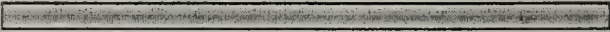
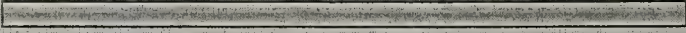

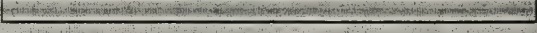
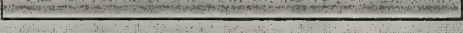
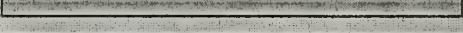
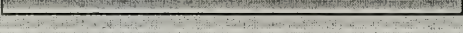
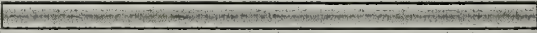
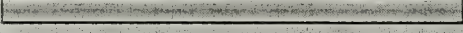
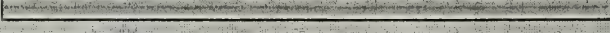
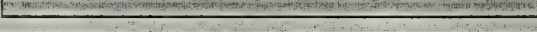
How would you rate the overall quality and content of the plan.		
	Response Percent	Response Count
1 - Poor	0.0%	0
2	0.0%	0
3 - Average	42.9%	3
4	14.3%	1
5 - Excellent	42.9%	3
answered question		7
skipped question		5

Do you feel the plan accurately portrays natural and man-made hazards in Montana?		
	Response Percent	Response Count
Yes	100.0%	7
No	0.0%	0
answered question		7
skipped question		5

What improvements do you think could be made to the plan?		Response Count
		5
answered question		5
skipped question		7

From the perspective of the jurisdiction that you represent or permanently reside in, how do you perceive the risk to each of the following hazards: Risk is defined as the potential to affect people, environment, economy and property of your jurisdiction.
High/Medium/Low for:

	High	Medium	Low	Rating Average	Response Count
Communicable Disease	25.0% (3)	50.0% (6)	25.0% (3)	2.00	12
Drought	91.7% (11)	8.3% (1)	0.0% (0)	1.08	12
Earthquake	0.0% (0)	25.0% (3)	75.0% (9)	2.75	12
Flooding/Dam Failure	33.3% (4)	16.7% (2)	50.0% (6)	2.17	12
Hazardous Material Incidents	41.7% (5)	41.7% (5)	16.7% (2)	1.75	12
Landslide	0.0% (0)	25.0% (3)	75.0% (9)	2.75	12
Terrorism/Violence	0.0% (0)	25.0% (3)	75.0% (9)	2.75	12
Thunderstorm Wind, Hail, and Tornadoes	75.0% (9)	25.0% (3)	0.0% (0)	1.25	12
Volcanic Eruption	0.0% (0)	8.3% (1)	91.7% (11)	2.92	12
Wildfire	83.3% (10)	16.7% (2)	0.0% (0)	1.17	12
Winter Storms/Avalanche	75.0% (9)	16.7% (2)	8.3% (1)	1.33	12
<i>answered question</i>					12
<i>skipped question</i>					0

Please comment on the impact that future development will have on the hazards listed from the perspective of your jurisdiction.			Response Percent	Response Count
Communicable Disease			88.9%	8
Drought			100.0%	9
Earthquake			66.7%	6
Flooding/Dam Failure			77.8%	7
Hazardous Material Incidents			66.7%	6
Landslide			66.7%	6
Terrorism/Violence			66.7%	6
Thunderstorm Wind, Hail, and Tornadoes			77.8%	7
Volcanic Eruption			66.7%	6
Wildfire			88.9%	8
Winter Storms/Avalanche			77.8%	7
answered question				9
skipped question				3

Please prioritize the following proposed NEW goals for the State Plan Update by order of Importance from the perspective of your jurisdiction (1=highest / 10=lowest):

	High				Medium				Low				Rating Average
Maximize the Use of Mitigation Actions that Prevent Losses from All Hazards	45.5% (5)	9.1% (1)	18.2% (2)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)			2.91
Increase State's Capability to Provide and Assist Locals with Mitigation Opportunities	18.2% (2)	45.5% (5)	9.1% (1)	9.1% (1)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)			2.64
Reduce the Community Impacts of Wildland and Rangeland Fires	27.3% (3)	27.3% (3)	18.2% (2)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)			3.00
Mitigate the Potential Loss of Life and Property from Flooding (riverine flooding, ice jams, dam failure)	18.2% (2)	18.2% (2)	9.1% (1)	9.1% (1)	27.3% (3)	0.0% (0)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)			4.09
Minimize Economic Impacts of Drought	27.3% (3)	36.4% (4)	18.2% (2)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)			2.45
Reduce Impacts from Severe Summer Weather (thunderstorm wind, hail, tornadoes)	36.4% (4)	27.3% (3)	18.2% (2)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)			2.73
Reduce Impacts from Severe Winter Weather (extreme cold, snow, ice)	36.4% (4)	27.3% (3)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)			2.91
Reduce Potential Earthquake Losses in Western Montana	0.0% (0)	40.0% (4)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	40.0% (4)			6.20
Reduce Losses from Hazardous Material Incidents	18.2% (2)	9.1% (1)	9.1% (1)	9.1% (1)	27.3% (3)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	18.2% (2)			4.91
Encourage Mitigation of Potentially Devastating but Historically Less Frequent Hazards	0.0% (0)	27.3% (3)	0.0% (0)	18.2% (2)	18.2% (2)	9.1% (1)	0.0% (0)	9.1% (1)	9.1% (1)	9.1% (1)			5.18

answered question

skipped question

Please indicate any additional Goals you think should be added to the State Plan.

Response Count

4

answered question

4

skipped question

8

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

Goal: Maximize the use of mitigation actions that prevent losses from all hazards.											
	High				Medium					Low	Rating Average
Develop GIS databases of hazard risk maps and state buildings and infrastructure to use in mitigation planning	18.2% (2)	9.1% (1)	27.3% (3)	9.1% (1)	18.2% (2)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	3.73
Conduct Level 1 HAZUS-MH analyses for all Montana counties	9.1% (1)	18.2% (2)	27.3% (3)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	27.3% (3)	0.0% (0)	0.0% (0)	4.27
Improve Statewide HAZUS data	9.1% (1)	45.5% (5)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	18.2% (2)	9.1% (1)	0.0% (0)	3.82
Determine GPS locations of all State buildings for detailed, non-public analysis	0.0% (0)	9.1% (1)	27.3% (3)	27.3% (3)	9.1% (1)	0.0% (0)	0.0% (0)	18.2% (2)	0.0% (0)	9.1% (1)	4.91
Conduct a non-public hazard assessment that utilizes specific State building locations and infrastructure locations to be used for mitigation actions and homeland security purposes	10.0% (1)	10.0% (1)	40.0% (4)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	10.0% (1)	4.50
Promote earth science education of hazards in schools	10.0% (1)	10.0% (1)	20.0% (2)	20.0% (2)	20.0% (2)	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	4.30
Conduct a Statewide warning capability assessment	36.4% (4)	27.3% (3)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	3.09
Develop a Statewide All-Hazard Emergency Alert System (EAS) plan	54.5% (6)	0.0% (0)	9.1% (1)	0.0% (0)	18.2% (2)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.91
Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.	36.4% (4)	9.1% (1)	27.3% (3)	9.1% (1)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.82
Increase the public awareness of hazards	36.4% (4)	18.2% (2)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.64
Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is	27.3% (3)	9.1% (1)	45.5% (5)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.82
Increase readiness for the protection of life and property during an event	36.4% (4)	18.2% (2)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.64
answered question											

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

2

answered question

2

skipped question

10

Goal: Increase State's capability to provide and assist locals with mitigation opportunities.

	High		Medium		Low						Rating Average
Continue outreach of mitigation project funding opportunities	40.0% (4)	10.0% (1)	20.0% (2)	0.0% (0)	20.0% (2)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.90
Provide technical assistance with the environmental review process	20.0% (2)	10.0% (1)	40.0% (4)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	3.80
Provide technical assistance for project development	18.2% (2)	27.3% (3)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	9.1% (1)	0.0% (0)	3.55
Create an electronic database of completed mitigation projects in Montana	18.2% (2)	18.2% (2)	9.1% (1)	9.1% (1)	18.2% (2)	0.0% (0)	9.1% (1)	18.2% (2)	0.0% (0)	0.0% (0)	4.18
Increase the scope and participation of the State Hazard Mitigation Team	9.1% (1)	27.3% (3)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	0.0% (0)	9.1% (1)	9.1% (1)	4.27
Create a private advisory group for mitigation	18.2% (2)	18.2% (2)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	9.1% (1)	0.0% (0)	4.36
Streamline mitigation standards in state and/or local subdivision regulations	36.4% (4)	27.3% (3)	18.2% (2)	0.0% (0)	18.2% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.36
Strengthen state and/or local building codes	18.2% (2)	36.4% (4)	27.3% (3)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	3.18
Require growth policies consider natural and man-made hazard	20.0% (2)	30.0% (3)	30.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	3.40
Create a state funded grant program to assist with the 25% match for local governments	27.3% (3)	45.5% (5)	9.1% (1)	9.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	9.1% (1)	2.73
Coordinate local plan development	18.2% (2)	36.4% (4)	27.3% (3)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	9.1% (1)	0.0% (0)	0.0% (0)	2.91
Provide technical assistance with											

State of Montana Multi-Hazard Mitigation Plan and Statewide Hazard Assessment

hazard mapping for rural communities without GIS capabilities	27.3%	9.1%	45.5%	9.1%	0.0%	0.0%	9.1%	0.0%	0.0%	0.0%	2.82
	(3)	(1)	(5)	(1)	(0)	(0)	(1)	(0)	(0)	(0)	
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											
										Response Count	
											1
answered question											1
skipped question											11

Goal: Mitigate the potential loss of life and property from flooding.											
	High				Medium					Low	Rating Average
Develop and improve upon model floodplain ordinances for local governments	10.0%	30.0%	20.0%	0.0%	20.0%	0.0%	0.0%	10.0%	0.0%	10.0%	4.1
	(1)	(3)	(2)	(0)	(2)	(0)	(0)	(1)	(0)	(1)	
Develop mapping for unmapped flood prone areas	30.0%	40.0%	0.0%	10.0%	10.0%	0.0%	0.0%	0.0%	0.0%	10.0%	3.0
	(3)	(4)	(0)	(1)	(1)	(0)	(0)	(0)	(0)	(1)	
Update floodplain mapping of mapped areas	22.2%	33.3%	22.2%	0.0%	11.1%	0.0%	0.0%	0.0%	0.0%	11.1%	3.2
	(2)	(3)	(2)	(0)	(1)	(0)	(0)	(0)	(0)	(1)	
Establish a schedule for NFIP map reviews and updates	20.0%	30.0%	30.0%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	10.0%	3.2
	(2)	(3)	(3)	(0)	(1)	(0)	(0)	(0)	(0)	(1)	
Provide outreach and technical assistance in joining the NFIP Community Rating System for reducing flood insurance premiums	10.0%	30.0%	20.0%	20.0%	10.0%	0.0%	0.0%	0.0%	0.0%	10.0%	3.6
	(1)	(3)	(2)	(2)	(1)	(0)	(0)	(0)	(0)	(1)	
Increase the public awareness of flood mitigation	0.0%	50.0%	10.0%	10.0%	20.0%	0.0%	0.0%	0.0%	10.0%	0.0%	3.6
	(0)	(5)	(1)	(1)	(2)	(0)	(0)	(0)	(1)	(0)	
Reduce the number of current and future structures in the floodplain	30.0%	10.0%	30.0%	0.0%	10.0%	10.0%	0.0%	0.0%	0.0%	10.0%	3.5
	(3)	(1)	(3)	(0)	(1)	(1)	(0)	(0)	(0)	(1)	
Prevent flooding of structures and infrastructure from inadequate storm drainage and poorly designed irrigation waterways	20.0%	10.0%	40.0%	0.0%	10.0%	0.0%	10.0%	0.0%	10.0%	0.0%	3.7
	(2)	(1)	(4)	(0)	(1)	(0)	(1)	(0)	(1)	(0)	
Provide adequate warning of flooding events	40.0%	30.0%	10.0%	0.0%	10.0%	0.0%	0.0%	0.0%	10.0%	0.0%	2.7
	(4)	(3)	(1)	(0)	(1)	(0)	(0)	(0)	(1)	(0)	

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

1

answered question

1

skipped question

11

Goal: Reduce the community impacts of wildland and rangeland fires.

	High				Medium				Low		Rating Average
Reduce fuels in the wildland urban interface	60.0% (6)	10.0% (1)	20.0% (2)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.9
Reduce hazardous fuels in rangeland areas	40.0% (4)	0.0% (0)	40.0% (4)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	3.1
Accurately assess and address the current wildland urban interface problems at the subdivision level	60.0% (6)	10.0% (1)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	2.5
Enhance firefighting resources and improve firefighting capabilities	60.0% (6)	10.0% (1)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	2.4
Enhance community awareness of wildfires through education	30.0% (3)	50.0% (5)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	2.5
Enhance effectiveness of response and evacuation	50.0% (5)	10.0% (1)	0.0% (0)	20.0% (2)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	3.0
Establish mapping or record keeping practices to support fuel management strategies	10.0% (1)	50.0% (5)	20.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	3.4
Minimize human-caused ignition sources in fire-prone areas	40.0% (4)	30.0% (3)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	3.1
Centralize fire history documentation	30.0% (3)	30.0% (3)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	3.6
Develop a consistent Statewide fire risk assessment system	33.3% (3)	44.4% (4)	0.0% (0)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	0.0% (0)	2.6
Encourage sustainable growth in wildland fire hazard areas	10.0% (1)	40.0% (4)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	20.0% (2)	4.6

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

12

Goal: Reduce potential earthquake losses in Western Montana.

	High				Medium				Low		Rating Average
Goal: Reduce potential earthquake losses in Western Montana.	12.5% (1)	12.5% (1)	25.0% (2)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	37.5% (3)	5.50
Provide greater enforcement of current building codes	44.4% (4)	11.1% (1)	11.1% (1)	0.0% (0)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	22.2% (2)	3.78
Develop model seismic building codes	22.2% (2)	44.4% (4)	0.0% (0)	0.0% (0)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	22.2% (2)	3.89
Create stronger building standards for critical facilities and structures housing vulnerable populations	44.4% (4)	11.1% (1)	11.1% (1)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	22.2% (2)	3.67
Require earthquake drills in schools in Western Montana	33.3% (3)	11.1% (1)	22.2% (2)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	22.2% (2)	3.89
Expand and upgrade earthquake monitoring network and reporting capabilities	44.4% (4)	11.1% (1)	0.0% (0)	0.0% (0)	22.2% (2)	0.0% (0)	0.0% (0)	11.1% (1)	0.0% (0)	11.1% (1)	3.78
Continue "Earthquake Preparedness Month" outreach activities during the month of October	22.2% (2)	33.3% (3)	11.1% (1)	0.0% (0)	0.0% (0)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	22.2% (2)	4.11
Implement non-structural mitigation projects to harden State and community infrastructure from seismic hazards	12.5% (1)	37.5% (3)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	25.0% (2)	4.88
Seismically retrofit existing critical facilities and government assets	12.5% (1)	50.0% (4)	0.0% (0)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	25.0% (2)	4.25

answered question

skipped question

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

Response
Count

0

answered question

0

skipped question

12

Goal: Minimize economic impacts of drought.

	High		Medium				Low				Rating Average
Develop a system for distributing information on current conditions	30.0% (3)	10.0% (1)	40.0% (4)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.90
Continue to support the State Drought Advisory Committee	30.0% (3)	30.0% (3)	20.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	3.20
Install Statewide drought monitoring stations	50.0% (5)	20.0% (2)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	2.90
Use long-term groundwater monitoring to assess drought conditions	60.0% (6)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	2.60
Educate farmers and ranchers in fiscally preventing drought losses	30.0% (3)	20.0% (2)	40.0% (4)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.50
Educate farmers and ranchers in reducing physical losses during dry seasons	40.0% (4)	10.0% (1)	30.0% (3)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.50
Identify water retention projects that could lessen the effects of drought	50.0% (5)	10.0% (1)	20.0% (2)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	2.40
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											Response Count
											1
<i>answered question</i>											1
<i>skipped question</i>											11

Goal: Reduce impacts from severe winter weather.											
	High				Medium					Low	Rating Average
Distribute winter driving and survival tips	40.0% (4)	10.0% (1)	20.0% (2)	20.0% (2)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.70
Increase public awareness of winter weather hazards	50.0% (5)	10.0% (1)	20.0% (2)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.40
Create partnerships with utility companies and negotiate for shorten span distances between power poles to better withstand snow loads and severe storms	40.0% (4)	30.0% (3)	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	3.00
Improve communication between emergency response personnel and road departments to facilitate coordination during extreme weather	40.0% (4)	30.0% (3)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	2.80
Structurally analyze all buildings or rooms identified as shelters and strengthen these as necessary	30.0% (3)	30.0% (3)	10.0% (1)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	3.20
<i>answered question</i>											
<i>skipped question</i>											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.											Response Count
											1
<i>answered question</i>											1
<i>skipped question</i>											11

Goal: Reduce Impacts from Severe Summer Weather (thunderstorms, wind, hail, tornadoes)

	High				Medium				Low		Rating Average
Install safety film on critical facilities to prevent shattering glass.	10.0% (1)	20.0% (2)	50.0% (5)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	3.70
Encourage development and enforcement of wind resistant buildings and construction codes	30.0% (3)	30.0% (3)	10.0% (1)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	3.10
Develop and implement programs to keep trees from threatening lives, property and public infrastructure during windstorm events	10.0% (1)	50.0% (5)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	3.50
<i>answered question</i>											
<i>skipped question</i>											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.

	Response Count
	1
<i>answered question</i>	1
<i>skipped question</i>	11

Goal: Reduce losses from Hazardous Material Incidents											
	High			Medium				Low			Rating Average
Develop communication plan for hazardous material emergencies	70.0% (7)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.20
Enhance information capability on types of hazardous materials traveling transportation routes	33.3% (3)	22.2% (2)	0.0% (0)	22.2% (2)	11.1% (1)	0.0% (0)	11.1% (1)	0.0% (0)	0.0% (0)	0.0% (0)	3.00
Provide hazardous material training to emergency responders	60.0% (6)	10.0% (1)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.20
Develop evacuation procedures for homes near transportation networks that commonly carry hazardous materials	60.0% (6)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	2.40
answered question											
skipped question											

Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.	
	Response Count
	1
answered question	1
skipped question	11

Goal: Encourage mitigation of potentially devastating but historically less frequent hazards.

	High				Medium				Low			Rating Average
Identify and map areas of greatest landslide and avalanche potential	20.0% (2)	10.0% (1)	20.0% (2)	10.0% (1)	20.0% (2)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)		4.00
Create a landslide/avalanche technical committee	10.0% (1)	10.0% (1)	10.0% (1)	20.0% (2)	10.0% (1)	30.0% (3)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)		4.70
Support the mitigation related goals, objectives, and actions of the Montana Homeland Security Strategic Plan	30.0% (3)	20.0% (2)	10.0% (1)	20.0% (2)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)		3.30
Reduce losses from communicable disease	50.0% (5)	20.0% (2)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)		3.00
Increase awareness of risks from communicable disease	40.0% (4)	30.0% (3)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)		2.80

*answered question**skipped question***Please write-in any specific mitigation projects related to this goal you feel should be added to the plan.****Response
Count**

1

answered question

1

skipped question

11

Please indicate how long it took you to complete the survey.		
	Response Percent	Response Count
5 minutes <input type="text"/>	10.0%	1
10 minutes	0.0%	0
15 minutes <input type="text"/>	20.0%	2
20 minutes <input type="text"/>	20.0%	2
30 minutes <input type="text"/>	30.0%	3
Greater than 30 minutes <input type="text"/>	20.0%	2
answered question		10
skipped question		2

District 6 On-Line Survey - What improvements do you think could be made to the plan?

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Comment Text		Response Date
 Find	1. update weather information	Thu, 6/7/07 1:31 PM
 Find	2. Updates with recent hazardous events since the plan was last finished. Listing of mitigation activities that have been completed throughout the state. Reevaluate existing mitigation strategies and add new ones to the list. A section could be added on current StormReady communities and counties in the state. There are a lot of them that have done this. http://www.weather.gov/stormready	Thu, 5/24/07 6:32 AM
 Find	3. none	Thu, 5/24/07 5:34 AM
 Find	4. dividing the hazards by region of the state rather than an overall state plan. Also, looking at all the PDM plans from the counties and working the state plan from the county plans.	Wed, 5/23/07 1:57 PM
 Find	5. Ag hazards have a great deal of effect on the citizens of Montana and the economy and should be addressed.	Wed, 5/23/07 1:55 PM
10 responses per page		

District 6 On-Line Survey - Suggested New Goals

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
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Comment Text		Response Date
 Find	1. Goals are OK	Thu, 6/7/07 1:37 PM
 Find	2. On the second option above, it depends on how this is done. ie. the money doesn't always seem to get to the locals in eastern MT. But, if there is a person at the state level who is helping the locals fill out the grant applications to get money for their jurisdictions, that would be very helpful. These folks are rarely full time, and they have so many administrative/bureacratic forms to fill out as it is. It would be great for the SHMO to come out to each DES district at their meetings, and ask the DES Coordinators what their mitigation items are from their local plans, and work on a plan on action to get some of the doable projects done.	Thu, 5/24/07 7:15 AM
 Find	3. covers it all	Thu, 5/24/07 5:43 AM
 Find	4. Maximize the mitigation efforts to control the Bison that carry deseases into Montana. Mitigate the potential for loss from quarantined cattle traveling through the state from Canada.	Wed, 5/23/07 2:20 PM
		10 responses per page

District 6 On-Line Survey - Other Goal 1 Mitigation Projects

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Comment Text		Response Date
 Find	1. We already have a state EAS plan, and it is currently in its first review and update. We need a way for counties to be able to issue their own emergency messages though, and not all broadcast stations can utilize EAS like larger population areas can. It would be great to see local/cell phone providers provide warning messages to a persons cell phone or home phone. (reverse 911 type system that doesn't	Thu, 5/24/07 9:59 AM
 Find	2. implement as soon as possible	Thu, 5/24/07 5:48 AM
10 responses per page		

Districts 6 On-Line Survey - Other Goal 2 Mitigation Projects

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Comment Text	Response Date
<div> Find</div> <p>1. The USGS has had funding cuts and river gages have been turned off. There are several locations in Northeast Montana that really could use an automated gage, including Malta and Glasgow. These sites have wire weight gages that a person has to manually read, which can be a safety hazard when cars are flying by. NOAA has some grant funding for AFWS (automated flood warning systems) grants that pay for hydrological monitoring systems. (400k in 2006) The state or counties need to apply for this grant through: http://www.grants.gov/search/search.do?mode=VIEW&oppld=9957 Perhaps a "Lower Milk River Coalition" should be formed to try and obtain funding for these two gage sites. StormReady in all counties/reservations. Require NOAA Weather Radio placement in all state, federal and local government offices. In 2006 and 2007, NOAA/DHS and D.O.Education placed NOAA Weather Radios in every public school, college/university and private school in the state. Voluntary locations a county/tribe could work on include putting them in restaurants, gas stations, dept stores, day cares, movie theaters, baseball fields, golf courses etc. Some of the current NOAA Weather Radio transmitters are getting older and don't cover as big an area as they could. ie. Glendive, MT is a 100 watt transmitter. If it could be upgraded to 300 Watts, it would cover a larger area, including the town of Wibaux which has no broadcast of emergency messages at all. Valley County held a fundraiser in December 2006 to get enough money to buy a 100 watt exciter to cover the Opheim community. This transmitter will be installed early this summer by the NWS when we receive the FCC license. One last item is that Montana takes part in the CoCoRaHS (Community Collaborative Rain, Hail and Snow Network) (www.cocorahs.org). This is a program of volunteers who report their precipitation daily. This is really helping fill in holes in our observation systems across the state. John Pulasky of the Northern Ag Network and OurMontana.org is the organizer of the program in Montana and is hoping that some of this data can help supplement precipitation for the state drought advisory committee.</p>	Thu, 5/24/07 9:59 AM
10 responses per page	

District 6 On-Line Survey - Other Flood Mitigation Projects

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Comment Text	Response Date
 Find 1. The StormReady program allows 25 points towards the CRS points that a community gets. See previous comments...they relate to this as well.	Thu, 5/24/07 10:02 AM
10 responses per page	

District 6 On-Line Survey - Other Drought Mitigation Projects

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Comment Text	Response Date
 Find 1. The State of Montana is one of the forerunners in drought activities, and that is recognized even in Washington D.C. The State DAC is well represented by several agencies, and they do an excellent job receiving input from the local communities. It's webpage is full of information, and easy to use. The media covers the meetings pretty well also.	Thu, 5/24/07 10:17 AM
10 responses per page	

District 6 On-Line Survey - Other Hazardous Material Mitigation Projects

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Comment Text	Response Date
 Find 1. Communities need to have EAS capabilities to be able to get the message out to the public as soon as possible. Currently the NWS is the middle man here, but that causes a delay with us having to get the information, type it up and send it out. And, we may need clarification. HazCollect is an NWS/DHS project that has unfortunately taken longer than we'd like to be put to operational use, but it has a strong potential in the future for MT communities to use it for emergencies such as HazMat.	Thu, 5/24/07 10:17 AM
10 responses per page	

District 6 On-Line Survey - Other Mitigation Projects for Less Frequent Hazards

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Comment Text		Response Date
 Find	1. Improve surveillance of communicable disease by educating the general population about the importance of reporting disease and how to report.	Wed, 5/23/07 3:03 PM
		10 responses per page

District 6 On-Line Survey - Other Severe Summer Weather Mitigation Projects

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
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Comment Text	Response Date
<div> Find</div> <div>1. Having a community clean up day during Earth Day would be a great idea to have loose debris cleaned up. Schools used to help with this, but the fear of finding drug needles and bottles of urine on the sides of the roads have stopped this practice in many locations. Statewide participation in Severe Weather Awareness Week is essential as well...again, getting the governor to declare it SWAW would be helpful and perhaps garner more media attention on how people need to be prepared ahead of time, and also what to do when the warnings are issued.</div>	Thu, 5/24/07 10:17 AM
10 responses per page	

District 6 On-Line Survey - Other Severe Winter Weather Mitigation Projects

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Comment Text		Response Date
<div> Find</div> <div>1. Outreach is always important, but getting people to act is another story. How many people actually carry winter survival kits in their vehicles? A partnership with a private company (home depot/wal-mart etc) would be a good thing with the kits already put together and sold at a reasonable price (www.getreadygear.com could maybe provide the kits in bulk?) Counties could sell these at health fairs, just like buying a first aide kit. People know the basics of what they need, but sometimes they need the extra push to actually do it...by having home and vehicles kits available at their local stores all ready to go may prompt them to buy it and utilize it. The NWS needs to do a better job working with state DES during our Winter Weather Awareness weeks (all the weeks actually). In the past (5+ years ago) we tried to get the Governor to declare it "Winter Weather Safety Week" like other states do, but previous administrations wouldn't do it. Perhaps its time for us to try that again?</div>	Thu, 5/24/07 10:17 AM	
		10 responses per page

District 6 On-Line Survey-Impact of Future Development on Communicable Disease Hazard

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




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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. More people spreading diseases affect our medical responders	Thu, 5/31/07 9:42 PM
 Find	3. High impact due to distance from large population centers and difficulty obtaining enough supplies.	Thu, 5/24/07 6:54 AM
 Find	4. More people...more chances to spread disease.	Thu, 5/24/07 6:39 AM
 Find	5. greater potential	Thu, 5/24/07 5:40 AM
 Find	6. Always present as a risk	Wed, 5/23/07 2:46 PM
 Find	7. Increased population numbers increase the risk.	Wed, 5/23/07 2:10 PM
 Find	8. none	Wed, 5/23/07 2:02 PM

10 responses per page

District 6 On-Line Survey-Impact of Future Development on Drought Hazard

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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. This increases the risk of wildfires and reduces that availability of water to fight fires.	Thu, 5/31/07 9:42 PM
 Find	3. Creates poverty in the region	Thu, 5/24/07 2:24 PM
 Find	4. high economic impact.	Thu, 5/24/07 6:54 AM
 Find	5. More competition for water which is already a large debate. Without the St. Marie Canal, the Milk River would be dry most of the summer from about Havre-Dodson area.	Thu, 5/24/07 6:39 AM
 Find	6. more water use	Thu, 5/24/07 5:40 AM
 Find	7. Annual rainfall leaves little wiggle room. Not enough precipitation or little rain in the growing season and we have drought.	Wed, 5/23/07 2:46 PM
 Find	8. Increased population numbers would mean that we have less land for agriculture and usually the best land goes under a house so the drought impact would be increased.	Wed, 5/23/07 2:10 PM
 Find	9. wells running dry, less water for cattle and industry	Wed, 5/23/07 2:02 PM
		10 responses per page

District 6 On-Line Survey-Impact of Future Development on Earthquake Hazard

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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. No historical evidence that our area would be highly impacted.	Thu, 5/24/07 6:54 AM
 Find	3. none	Thu, 5/24/07 5:40 AM
 Find	4. minimal risk	Wed, 5/23/07 2:46 PM
 Find	5. The earthquake factor would change but the number on individuals affected would be increased.	Wed, 5/23/07 2:10 PM
 Find	6. little	Wed, 5/23/07 2:02 PM
10 responses per page		

District 6 On-Line Survey-Impact of Future Development on Flooding Hazard

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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. No large dams in our area; Lewistown has a mill ditch which has lessened the impact of flooding.	Thu, 5/24/07 6:54 AM
 Find	3. There is some light development below Fort Peck Dam. There are also many communities that would be impacted in a dam failure there.	Thu, 5/24/07 6:39 AM
 Find	4. some/need laws for subdivisions	Thu, 5/24/07 5:40 AM
 Find	5. It can happen but with a dam on the Poplar river in Canada the risk is reduced. Very few people live by the river.	Wed, 5/23/07 2:46 PM
 Find	6. We have very little flooding problems but if the one large dam failed and homes were along the river instead of pasture land then we could have major problems.	Wed, 5/23/07 2:10 PM
 Find	7. flood plain management will be a priority	Wed, 5/23/07 2:02 PM
		10 responses per page

District 6 On-Line Survey-Impact of Future Development on Hazardous Material Incidents

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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. We have many missile silos and frequently have military convoys through our county.	Thu, 5/24/07 6:54 AM
 Find	3. same	Thu, 5/24/07 5:40 AM
 Find	4. Fertilizer storage is a risk	Wed, 5/23/07 2:46 PM
 Find	5. Increased problems due to the materials needed by an increased population and the trafficking of drugs and chemicals.	Wed, 5/23/07 2:10 PM
 Find	6. as more people build in this area there is more chance of hazmat impacting the citizens	Wed, 5/23/07 2:02 PM
10 responses per page		

District 6 On-Line Survey-Impact of Future Development on Landslide Hazard

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Comment Text		Response Date
 Find	1. no impact	Thu, 6/7/07 1:35 PM
 Find	2. There are a large number of subdivisions being developed in our area-if these are not planned for properly, there could be some impact.	Thu, 5/24/07 6:54 AM
 Find	3. some/need laws for subdivisions	Thu, 5/24/07 5:40 AM
 Find	4. No	Wed, 5/23/07 2:46 PM
 Find	5. very little effect	Wed, 5/23/07 2:10 PM
 Find	6. none	Wed, 5/23/07 2:02 PM
		10 responses per page

District 6 On-Line Survey-Impact of Future Development on Severe Summer Weather Hazards

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




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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. This can produce flash floods that people don't think about here, and thunderstorms create numerous fires here every year.	Thu, 5/31/07 9:42 PM
 Find	3. High likelihood of severe weather based on history-impact on community would most likely be financial.	Thu, 5/24/07 6:54 AM
 Find	4. none	Thu, 5/24/07 5:40 AM
 Find	5. always a risk in the summer	Wed, 5/23/07 2:46 PM
 Find	6. The events wouldn't change but the fact the people would be there to witness the events and be in their destructive path would increase the incident of severe weather events.	Wed, 5/23/07 2:10 PM
 Find	7. could impact the citizens and as more people there could be more problems encountered.	Wed, 5/23/07 2:02 PM

10 responses per page

District 6 On-Line Survey-Impact of Future Development on Terrorism Hazard

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


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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. Missile silos could be targeted.	Thu, 5/24/07 6:54 AM
 Find	3. population increases/more radicals	Thu, 5/24/07 5:40 AM
 Find	4. Possible but unlikely	Wed, 5/23/07 2:46 PM
 Find	5. Increased populations could trigger increased violent acts and terrorism.	Wed, 5/23/07 2:10 PM
 Find	6. MT is historically a good place to come if you do not want to be found or if you realize there is little law enforcement for a large area. This will lead to more unknowns in the state	Wed, 5/23/07 2:02 PM

10 responses per page

District 6 On-Line Survey-Impact of Future Development on Volcanic Eruption Hazard

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Comment Text		Response Date
 Find	1. on impact	Thu, 6/7/07 1:35 PM
 Find	2. None.	Thu, 5/24/07 6:54 AM
 Find	3. none	Thu, 5/24/07 5:40 AM
 Find	4. No	Wed, 5/23/07 2:46 PM
 Find	5. no effect	Wed, 5/23/07 2:10 PM
 Find	6. little	Wed, 5/23/07 2:02 PM
10 responses per page		

District 6 On-Line Survey-Impact of Future Development on Wildfire Hazard

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



Displaying 1 - 8 of 8 responses

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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. Protection of new homes and more people with out more equipment	Thu, 5/31/07 9:42 PM
 Find	3. Surrounded by mountain ranges-impact would be mostly financial	Thu, 5/24/07 6:54 AM
 Find	4. Urban-Wildland interface issues.	Thu, 5/24/07 6:39 AM
 Find	5. increased population/more risks	Thu, 5/24/07 5:40 AM
 Find	6. Drought causes risk of fires. They happen every year.	Wed, 5/23/07 2:46 PM
 Find	7. Individuals building in the forest with very little defendable space would increase the frequency of events and the costs to protect these homes.	Wed, 5/23/07 2:10 PM
 Find	8. mitigation should be a priority, or better planning is needed in the subdivision regs.	Wed, 5/23/07 2:02 PM
		10 responses per page

District 6 On-Line Survey-Impact of Future Development on Severe Winter Weather Hazards

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Comment Text		Response Date
 Find	1. impact	Thu, 6/7/07 1:35 PM
 Find	2. Problems on accessing new subdivisions	Thu, 5/31/07 9:42 PM
 Find	3. Avalanche not a huge concern, but winter storms can be severe and impact community in a number of ways-schools closing, people stranded, large elderly population unable to access needed services.	Thu, 5/24/07 6:54 AM
 Find	4. none	Thu, 5/24/07 5:40 AM
 Find	5. Blizzards happen nearly every year along with the below zero temperatures.	Wed, 5/23/07 2:46 PM
 Find	6. People are not prepared for thes events especially those that move out here form the cities. Inceasd population numbers would trend to more assistance/incidents involving individuals in winter storm	Wed, 5/23/07 2:10 PM
 Find	7. more development may see an impact from winter storms but education of newcomers to the state is needed	Wed, 5/23/07 2:02 PM
10 responses per page		

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

Mitigation Projects

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Daniels County

High Priority

- Install pigtails (electrical wiring) and 2-way switches at critical facilities to accommodate mobile generators.
- Obtain mobile generators to pump fuel for response vehicles.

Fergus County

High Priority

- Partner with other organizations and agencies with similar goals to promote disaster resistant building codes and insure compliance with floodplain regulations for new and existing buildings and infrastructure.

Medium Priority

- Identify and pursue funding opportunities to mitigate Fergus County's communications problems including radio repeaters, radios and all communication issues.
- Work with community organizations and other neighborhood groups to establish Community Emergency Response Teams.

Fort Peck Reservation

High Priority

- Provide training for first responders.
- Purchase mobile generators for emergency response activities.

Medium Priority

- Install pigtails (electrical wiring) at shelters and critical facilities to accommodate mobile generators.

Judith Basin County

Medium Priority

- Obtain road signage for rural addressing system.
- Recruit and provide training (CERT and BERT) for volunteer response personnel.
- Look into getting better cell phone coverage in County.
- Obtain portable radios for emergency responders.

Petroleum County

Low Priority

- Replace emergency vehicles.

Phillips County

High Priority

- Develop map of ranch roads to enhance response efforts.

Medium Priority

- Obtain mobile generators to use around County as needed.

Low Priority

- Install pigtails at shelters to accommodate mobile generators.
- Develop alternate escape route for community of Zortman.
- Improve radio communication systems.

Roosevelt County

High Priority

- Purchase mobile generators to provide alternate power for critical facilities.

Medium Priority

- Provide training for first responders.
- Install pigtails (electrical wiring) at shelters and critical facilities to accommodate mobile generators.

Sheridan County

High Priority

- Develop GIS system to manage resource protection including procurement of computer and training.
- Provide AWOS or ASOS system at airport for air ambulance.
- Provide generators for wells and lift stations in Plentywood, Antelope and Reserve.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.1 - Increase readiness for the protection of life and property during an event.

Sheridan County

Medium Priority

- Obtain mobile generator for town of Westby.
- Upgrade utility poles with shorter span distances.
- Install pigtailes (electrical wiring) at shelters to accommodate mobile generators.

Valley County

High Priority

- Recruit EMT volunteers through public outreach.
- Provide training to first responders.
- Install one-way antennae in Opheim to receive weather broadcasts from NOAA.
- Provide generator for water treatment plant, lift station, pumping stations.

Medium Priority

- Tie into Dry Prairie pipeline for backup water supply for Glasgow.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Daniels County

High Priority

- Rebroadcast NOAA weather channel on local KCGM radio station.
- Buy weather radios for various critical facilities.
- Provide weather radios at discount to area residents.
- Obtain generator for radio station.
- Obtain emergency generators to power sirens.

Medium Priority

- Update sirens system in rural communities.

Fort Peck Reservation

High Priority

- Upgrade siren systems in all communities.
- Purchase weather radios for critical facilities (consider solar radios). Provide weather radios at discount to rural residents.

Judith Basin County

High Priority

- Equip critical facilities with NOAA Radios.

Medium Priority

- Provide a warning system for the community of Raynesford.
- Implement E911 reverse notification system.
- Update warning systems in schools.
- Obtain a HAM radio for the County Emergency Operations Center.

Petroleum County

Low Priority

- Upgrade radio cell tower.

Phillips County

High Priority

- Obtain/upgrade sirens for all communities and include a public awareness campaign, along with installation of new sirens.
- Obtain NOAA weather radios for critical facilities.

Low Priority

- Expand NOAA Weather Radio Reception to WhiteWater.
- Obtain emergency generator for Dodson school.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.2 - Enable every citizen in Montana to receive critical warning information immediately no matter where he/she is.

Roosevelt County

High Priority

- Upgrade siren systems in all communities.
- Implement local warning system (like channel 15) for local communities.

Sheridan County

High Priority

- Update sirens system in Plentywood and in rural communities.
- Purchase weather radios for critical facilities (consider solar radios). Provide weather radios at discount to rural residents.

Medium Priority

- Implement reverse 911 system for outlying towns.

Valley County

High Priority

- Update siren system in Glasgow, Fort Peck, Richland, Opheim, Nashua and Hinsdale.
- Obtain RTV weather warning equipment for the three channels in Valley County.
- Enhance NOAA broadcasts to include northern Valley County by installing one-way antennae in Opheim.
- Upgrade emergency advisory equipment at radio station.
- Provide weather radios or scanners at discount to area residents.
- Buy weather radios for various critical facilities.

Medium Priority

- Install antennae west of The Pines for ham radio communication.
- Obtain EAS equipment for the local PBS station.

OBJECTIVE 1.3 - Increase the public awareness of hazards.

Fergus County

Medium Priority

- Educate individuals and businesses on the benefits of preparedness, the NFIP and engaging in mitigation activities in areas identified to be at risk through hazard mapping.
- Encourage the development of unifying organizations to ensure communication and dissemination of natural hazard mitigation information.
- Conduct, train and exercise for preparedness and natural hazards awareness programs for schools.
- Conduct workshops for public and private sector organizations to raise the awareness of preparedness and mitigation activities and programs.
- Encourage private property owners to upgrade their bridges and culverts to support weight of fire trucks and emergency vehicles.

Judith Basin County

High Priority

- Conduct training and evacuation exercises with all communities.
- Identify and educate public on location of emergency shelters.
- Establish programs for county youth involvement in hazard risk awareness and reduction.
- Provide education to public on severe weather risk reduction.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Fergus County

High Priority

- Integrate the Fergus County Mitigation Plan into current capital improvement plans ensuring that new development does not encroach on known hazard areas.
- Develop updates for the Natural Hazards Mitigation Action Plan based on new information.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 1 - Maximize the use of mitigation actions that prevent losses from all hazards.

OBJECTIVE 1.4 - Continuously improve hazard assessments and the associated evaluation of vulnerabilities from all hazards.

Fergus County

Medium Priority

- Establish measurable standards to evaluate and monitor mitigation policies and programs providing a mechanism to update and revise the Mitigation Plan.
- Conduct a full review of the Natural Hazards Mitigation Action Plan every 5 years by evaluating mitigation successes, failures, and areas that were not addressed.
- Work with city and town councils to identify and address future risks and mitigation projects.
- Assist with the identification of areas that are at high risk due to decay and mitigate that risk.
- Improve communication between Montana Dept. of Transportation and the County Road Dept. and Utility providers and the Montana Dept. of Transportation.
- Oversee implementation of the Mitigation Plan.

Judith Basin County

High Priority

- Increase involvement of LEPC in all communities.

GOAL 2 - Increase State's capability to provide and assist locals with mitigation opportunities.

OBJECTIVE 2.2 - Promote mitigation through supportive legislation and funding.

Fergus County

High Priority

- Use the Mitigation Plan to help develop the County's Growth Plan and Subdivision Regulations to protect life and property from natural disasters and hazards through planning strategies that restrict development in areas of known hazards.

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Daniels County

High Priority

- Construct a fire break network around towns and for certain CRP locations.
- Develop alternate water supplies to fight fires in towns.
- Increase water storage capacity to enhance fire fighting capability.

Medium Priority

- Install dry hydrants in fields and develop access roads.
- Recruit for volunteer fire departments.

Judith Basin County

Medium Priority

- Enhance incident command system/NIMS compliance.
- Develop a formal rural fire coordinator position within the County to manage overhead responsibilities across all county fire districts
- Enhance radio availability in each fire district, link into existing dispatch, and improve range within the regions, update to new digital narrow band frequency adopted by federal and state agencies.
- Establish means to recruit and sustain emergency responders.
- Increase training and capability of fire fighters.
- Perform facility improvements, heating, storage, and maintenance including construction of an Essential Services building in Geyser for water tenders.
- Develop regional water system with dry hydrants in each community.
- Acquire equipment needed for wildland and structure fire fighting including a larger fire tender for Geyser VFD.

Petroleum County

High Priority

- Train fire personnel on GPI, GPS and ArcView.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.1 - Enhance firefighting resources and improve firefighting capabilities.

Petroleum County

High Priority

- Build heated garage in north county for fire vehicles.
- Identify all water sources in the county.

Phillips County

High Priority

- Provide radios to farmers and ranchers who respond to rural grass fires.
- Identify appropriate locations for the installation of dry hydrants in the County.
- Obtain digital radios for fire fighters.
- With cooperators, provide classroom or video fire suppression training for rural area citizens and County employees who will respond to wildland fires.

Medium Priority

- Provide training to farmers and ranchers on fire fighting techniques.

Low Priority

- Obtain back-up generator for Dodson town well.
- Obtain SCBAs (self contained breathing apparatus) for fire departments.

Sheridan County

Medium Priority

- Update water distribution system in old section of Plentywood - very poor water flow due to undersized pipes.
- Construct fire-proof buildings for generators at pumping stations.
- Provide training to first responders.
- Increase water storage capacity in Medicine Lake, Outlook and Westby.
- Provide generator to well in Outlook and Westby.

Valley County

High Priority

- Provide additional training to fire fighters.
- Purchase turn-out gear for Opheim.
- Increase pressure at water hydrants in Glasgow.

Medium Priority

- Install dry hydrants in fields around Opheim.

Low Priority

- Provide training and equipment for fighting oil-field fire in Lustre.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Daniels County

High Priority

- Remove old abandoned buildings around town.
- Institute weed control measures (mowing) around town.
- Negotiate over haying of CRP land that surrounds all towns in County.

Fort Peck Reservation

High Priority

- Institute weed control measures (mowing) along railroad.
- Negotiate over haying of CRP land.

Judith Basin County

Medium Priority

- Remove abandoned structures in all communities including abandoned elevators in Raynesford and Benchland.
- Mow and clean up fuels in all communities, especially around Utica.
- Conduct fuels mitigation of the FEMA "Emergency Evacuation Routes".

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.2 - Reduce fuels in the wildland urban interface (WUI), rangeland and communities.

Judith Basin County

Medium Priority

- Develop a fire break between Raynesford and CRP lands bordering on the northwest.
- Perform community defensible zone WUI treatments.
- Develop a fire break between Geyser and CRP lands bordering on the south.
- Improve access through road-side fuels management, especially Dry Wolf Road.
- Coordinate with other agencies for implementation of fuels reduction projects in county fire plan.
- Maintain watered landscaping (green space) around towns to serve as fire break.

Phillips County

High Priority

- Coordinate with State Regional DES and Federal partners for scheduling and attendance at Incident Command System (ICS) 100/200 and/or IS 700 or State of Montana DES training requirement.
- Coordinate with cooperators and employ fuel reduction treatments on CRP and other lands. Fuel treatments would include mechanical treatments such as mowing or plow/disk perimeters, hand piles and burning and prescribed fire or a combo of treatments.
- Continue grazing in sustainable areas by wild and domestic ungulates to reduce fuel loadings and lower potential wildfire intensity.

Low Priority

- Provide fire resistant building for Dodson town well. Until that is completed, remove or cover wildfire fuels next to the well house.

Roosevelt County

High Priority

- Institute weed control measures (mowing) along railroad.
- Negotiate haying of CRP land.

Sheridan County

High Priority

- Institute ordinance not allowing CRP within one-half mile of towns.
- Negotiate for haying of CRP land.
- Construct a fire break network for certain CRP locations.
- Remove old abandoned buildings around towns.

Valley County

High Priority

- Remove old abandoned buildings in Opheim, Fort Peck and Nashua.
- Construct fire break network at the Pines and for certain CRP locations.
- Institute weed control measures (mowing/brush clearing) along railroad in Glasgow and Nashua, and around town of Opheim.
- Hay CRP fields.
- Construct fire guards (breaks) upwind of Opheim and in CRP fields.

Medium Priority

- Install metal roof on Fort Peck Theatre.
- Install sprinkler system in Fort Peck Theatre.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Judith Basin County

Medium Priority

- Conduct youth and adult wildfire educational programs.

Petroleum County

Low Priority

- Develop education programs and written material for fire mitigation.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.3 - Enhance community awareness of wildfires through education.

Phillips County

High Priority

- Implement Firewise practices through creation of defensible space around communities and private homes. Utilize standard Fire Protection Guidelines for Residential Development in the Wildland/Urban Interface. Participate in the Nat. Firewise program.

Sheridan County

High Priority

- Institute public education program in fire prone areas (Outlook due to railroad grade).

Valley County

High Priority

- Better broadcast burn day restrictions, especially during Red Flag events.

Medium Priority

- Modify railroad operations and equipment for synoptic scale high wind events.

OBJECTIVE 3.4 - Accurately assess and address the current wildland urban interface problems at the subdivision level.

Judith Basin County

Medium Priority

- Conduct wildfire risk assessments of homes in identified communities.
- Develop County policy concerning access in moderate to high risk WUI areas where subdivisions are built to insure adequate ingress and egress during wildfire emergencies.
- Develop county policy concerning building materials used in high risk WUI areas on existing structures and new construction.
- Amend existing building codes to apply equally to new single housing construction as it does to subdivisions to minimize risks to firefighters.
- Perform home site treatments throughout the county.

Petroleum County

Medium Priority

- Home safety inspection program.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Judith Basin County

High Priority

- Implement a County-wide Communications Plan.

Medium Priority

- Post FEMA "Emergency Evacuation Route" signs along the identified primary and secondary access routes in the county.
- Improve access of bridges, cattle guards, and limiting road surfaces.

Petroleum County

Medium Priority

- House numbers for enhanced 911.

Phillips County

High Priority

- Locate and identify roads that have wooden bridges within the County. Plan protection measures and alternate routes in the event of a wildfire compromising or burning these bridges.

Sheridan County

Low Priority

- Create alternate route for evacuation in town of Plentywood.

Valley County

High Priority

- Coordinate emergency response activities between railroad/city/county.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 3 - Reduce the community impacts of wildland and rangeland fires.

OBJECTIVE 3.5 - Enhance effectiveness of response and evacuation.

Valley County

Medium Priority

- Develop alternate evacuation route for Nashua (train blocks access routes).

OBJECTIVE 3.6 - Establish mapping or record keeping practices to support fuel management strategies.

Petroleum County

Medium Priority

- Identify all HazMat sites in county.

Low Priority

- Train fire department personnel on grant writing.
- Upgrade fire reports.

Phillips County

High Priority

- Develop GPS database of water sources for fighting fires.
- Develop Type III Incident Management Team table of organization utilizing expertise within the county and adjacent counties within the MT State DES region.

GOAL 4 - Minimize economic impacts of drought.

OBJECTIVE 4.1 - Identify water retention projects that could lessen the effects of drought.

Fort Peck Reservation

Medium Priority

- Negotiate for summer releases from Fort Peck Dam.
- Develop alternate water supplies for irrigation.

Petroleum County

Medium Priority

- Water conservation.

Roosevelt County

Medium Priority

- Negotiate for summer releases from Fort Peck Dam.
- Develop additional water supplies.
- Construct Fort Peck Tribes Dry Prairie water line.

OBJECTIVE 4.3 - Improve drought monitoring and assessments.

Petroleum County

High Priority

- Form local drought advisory committee.

Low Priority

- Fire suppression during drought conditions through press releases, "reader boards", identification of high risk fire areas, restricted vehicle traffic in high risk areas and cancellation of open burning permits.

Valley County

High Priority

- Include water equivalent measurements in routine weekly Coop observation sites.

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Daniels County

High Priority

- Obtain information on Canadian Power Plant cooling dam upstream of Scobey and develop program for alerting residents in case of emergency.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.1 - Provide adequate warning of flooding events.

Petroleum County

High Priority

- Review emergency operating plans for high risk and high hazard dams in Petroleum County.

Low Priority

- Update list of residences below high risk and high hazard dams and inform residents of dam failure warning system and evacuation route.

Sheridan County

High Priority

- Improve siren system on Box Elder Dam (above Plentywood).

Low Priority

- Minimize disruption to transportation during flooding by constructing bridge west of Plentywood.

OBJECTIVE 5.2 - Reduce the number of current and future structures in the floodplain.

Judith Basin County

Medium Priority

- Create county and local floodplain ordinances.

Sheridan County

Low Priority

- Buy-out structures within east spillway of Box Elder Dam (above Plentywood).

Valley County

High Priority

- Improve subdivision regulations countywide.
- Maintain or improve the regulation of the 100-year floodplain.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Daniels County

Medium Priority

- Replace old bridges and culverts and improve roads to withstand flash floods.

Fort Peck Reservation

Medium Priority

- Construct flood diversion in Brockton.
- Improve storm water system along Hwy 2 in Wolf Point and south side of town.

Judith Basin County

Medium Priority

- Construct flood control measures (dikes, channels, rip-rap).
- Improve water crossings to handle floodwater.
- Maintain water crossings so they do not become clogged with debris.

Petroleum County

Medium Priority

- The Winnett Director of Public Works will survey current storm drain system and determine adequacy.

Roosevelt County

High Priority

- Maintain diversion and low-water crossing (Culbertson).
- Maintain waterways to keep free from debris (Culbertson).
- Construct channel to handle outflow from culverts (Culbertson).

Medium Priority

- Construct diversion in Saddle Club area to slow down water prior to culverts (Culbertson).
- Improve storm water system along Hwy 2 in Wolf Point and south side of town.
- Construct flood diversion (Brockton).

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.3 - Prevent flooding of structures and infrastructure.

Roosevelt County

Medium Priority

- Install additional culvert in Hwy 16 north (MDT plan) [Culbertson].
- Design storm sewers for town of Culbertson to handle surface water run off.
- Install flood diversion and culverts (Froid).

Sheridan County

High Priority

- Update dike at Plentywood Golf Course.

Medium Priority

- Build up road and replace culvert in conjunction with NRCS wetlands project (Dagmar area - 12 miles east of Reserve).
- Increase storm sewers in Plentywood.
- Update dike in Reserve.

Valley County

High Priority

- Negotiate pre-flood season release from Fresno Dam to minimize ice jam hazard.
- Install backflow valve on Nashua storm sewer system.
- Add automated river gauge at Glasgow.
- Negotiate with FEMA to accept Nashua flood control system.
- Extend dikes along west side of Glasgow.
- Improve coordination with local, county, state and federal agencies.
- Protect public infrastructure, buildings, and public utilities.
- Minimize flood damages to buildings and personal property.
- Repair dikes around south side of Glasgow.

Medium Priority

- Upgrade dikes west of Nashua.
- Increase size of ditch behind homes in Hinsdale near Tank Coulee.
- Construct dam on Porcupine Creek to divert flow from entering Milk River.
- Measure foundation elevations of rural residences.
- Consider ways to mitigate flood impacts to Green Meadow Estates in Glasgow (subdivision located in Milk River floodplain).
- Upgrade storm sewers in Glasgow to mitigate drainage problems.
- Raise grade of north-south road in Nashua.

Low Priority

- Consider mitigations for three houses in floodplain in Nashua.

OBJECTIVE 5.4 - Increase the public awareness of flood mitigation.

Petroleum County

Low Priority

- Distribute "Protect your home from flooding" and other pertinent information to homes along the Musselshell and hold informational classes at Winnett school.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Fort Peck Reservation

High Priority

- Enter Wolf Point, Poplar, Brockton, Frazer and Reserve into National Flood Insurance Program.

Judith Basin County

Medium Priority

- Complete floodplain mapping throughout county.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 5 - Mitigate the potential loss of life and property from flooding.

OBJECTIVE 5.5 - Improve the effectiveness of the flood insurance programs.

Petroleum County

High Priority

- Coordinate with State of Montana to map out Musselshell floodplain.

Medium Priority

- Install ArcView on county computer and train county personnel.

Roosevelt County

High Priority

- Enter Wolf Point, Poplar, Brockton, Froid and Bainville into National Flood Insurance Program.
- Determine flood elevations for town of Culbertson and update floodplain maps.

Sheridan County

Medium Priority

- Perform floodplain mapping in Reserve.

Valley County

High Priority

- Improve public awareness of flood risk, flood insurance and flood construction regulations.
- Improve floodplain maps.

OBJECTIVE 5.6 - Reduce the risk of dam or levee failure.

Fort Peck Reservation

Medium Priority

- Update dike in Reserve.

Sheridan County

High Priority

- Perform seismic evaluation of Box Elder Dam above Plentywood.
- Install seismic equipment to detect movement on Box Elder Dam.

Valley County

Low Priority

- Update diversion dams in southwest corner of County.

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Judith Basin County

High Priority

- Install electrical hook-ups (pigtailed) in emergency shelters and other critical facilities and emergency shelters to accommodate portable generators.
- Obtain generator for County Courthouse.

Medium Priority

- Obtain stationary or portable generators for other critical facilities and emergency shelters.
- Obtain generator for Stanford water system.
- Obtain snow removal equipment for Stanford.

Petroleum County

High Priority

- Enhance weather monitoring abilities.
- Develop programs to reduce risk to public infrastructure.

Low Priority

- Build garage to house county generator.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 6 - Reduce impacts from severe winter weather.

OBJECTIVE 6.1 - Increase community capabilities to mitigate winter weather hazards.

Phillips County

Low Priority

- Have County snow removal equipment available in Zortman.

Valley County

High Priority

- Provide generators for nursing homes and shelters in Glasgow.
- Identify emergency shelter in Nashua and equip with generator.
- Provide two-way switches for generators.

Medium Priority

- Purchase snowmobile as response vehicle for Nashua.

OBJECTIVE 6.2 - Increase public awareness of winter weather hazards.

Petroleum County

High Priority

- Increase public awareness of severe weather and mitigation activities.

GOAL 7 - Reduce impacts from severe summer weather.

OBJECTIVE 7.1 - Increase community capabilities to mitigate summer weather hazards.

Judith Basin County

High Priority

- Install protective film on windows at critical facilities to prevent shattering of glass.

Medium Priority

- Structurally analyze all buildings or rooms identified as shelters and strengthen as necessary.

Petroleum County

High Priority

- Enhance strategies for debris management.

Medium Priority

- Support and encourage elect. utilities to use underground utilities.
- Develop program to keep trees trimmed.
- Develop plans to attain outstation and air strip rescue.

Valley County

Medium Priority

- Install web-cam on face of Fort Peck dam to enhance high wind advisory system.

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Daniels County

Medium Priority

- Provide awareness training on meth-labs.

Judith Basin County

Medium Priority

- Develop an emergency transportation plan that considers key roadways and intersections.

Petroleum County

High Priority

- Training in HazMat procedures.
- Training in MSDS.

Medium Priority

- Adequate equipment for HazMat response.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 8 - Reduce losses from hazardous material incidents.

OBJECTIVE 8.1 - Provide education, training on haz-mat incidents and response.

Petroleum County

Medium Priority

- Public education.

Sheridan County

Medium Priority

- Provide awareness training on meth labs.

Valley County

High Priority

- Enhance railroad chemical spill mitigation.

Medium Priority

- Provide awareness training on meth labs.
- Network with Corps of Engineers and WAPA on haz-mat preparedness planning.
- Provide training and software on hazardous materials to emergency managers.

OBJECTIVE 8.2 - Identify and secure hazardous materials locations and transporters.

Daniels County

Medium Priority

- Relocate anhydrous ammonia tank currently adjacent to town of Scobey.
- Secure fertilizer and propane plants to reduce unauthorized access.

Fort Peck Reservation

High Priority

- Relocate anhydrous ammonia tank adjacent to Wolf Point city limits.

Judith Basin County

Medium Priority

- Install a railroad crossing gate and lights at the Geyser intersection.
- Improve mapping of hazardous materials fixed site locations and common transportation routes.

Petroleum County

Low Priority

- GPS hazmat sites.

Roosevelt County

High Priority

- Relocate hazardous materials storage facilities currently adjacent to city limits.

Sheridan County

High Priority

- Review Plentywood city ordinances regarding haz-mat truck traffic through town.

Medium Priority

- Construct bypass for haz-mat truck traffic to avoid Plentywood business district.
- Install pylons along highway adjacent to anhydrous ammonia tanks.
- Anchor and block up fuel and propane tanks in outlying towns.
- Move propane tank in Westby currently located adjacent to railroad tracks.
- Enforce proper placarding of haz-mat loads crossing into US from Canada.

Valley County

High Priority

- Secure bulk petroleum, propane, and anhydrous ammonia tanks with fencing.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 10 - Reduce the likelihood of communicable disease outbreaks.

OBJECTIVE 10.1 - Reduce losses associated with a human health emergency.

Daniels County

Medium Priority

- Investigate mitigation options for West Nile Virus.

Sheridan County

Medium Priority

- Investigate mitigation options for West Nile Virus and Hanta Virus

Valley County

Medium Priority

- Investigate mitigation options for West Nile Virus.

OBJECTIVE 10.2 - Reduce losses associated with livestock disease outbreaks and agricultural emergencies.

Judith Basin County

Medium Priority

- Provide training to first responders on response to biological hazards to livestock and crops.
- Develop several holding facilities within Judith Basin County to quarantine affected livestock.

GOAL 11 - Encourage mitigation of potentially devastating but historically less frequent hazards.

OBJECTIVE 11.1 - Prevent losses from acts of terrorism, violence and civil unrest.

Fergus County

High Priority

- Encourage local governments, citizens and businesses to pursue Terrorism Awareness and Homeland Security Training that enhance overall capabilities and self-preparedness.
- Identify and pursue funding opportunities to mitigation Fergus County's terrorism program.
- Assess and develop terrorism responses capabilities necessary to support Fergus County, mutual aid to support other counties, the state and our nation.
- Encourage interaction with Malmstrom Air Force Base to mitigate the possibility of nuclear weapons in transport and missile site events/activities involving transportation and missile sites.
- Encourage the implementation of NIMS throughout the county.
- Encourage Malmstrom Air Force Base to have a representative as a Local Emergency Planning Committee member.

Fort Peck Reservation

Medium Priority

- Install fencing and alarm system at water treatment plant and water supply wells.

Roosevelt County

Medium Priority

- Install fencing and alarm system at water treatment plant and water supply wells.
- Purchase equipment for emergency response agencies to respond to chemical, biological and terrorist incidents.

Sheridan County

Medium Priority

- Install fencing and alarm system at water treatment plant and water supply wells.

Valley County

Medium Priority

- Install fencing and alarm system at water treatment plant and water supply wells.

OBJECTIVE 11.3 - Identify and reduce losses from volcanic activity.

Petroleum County

High Priority

- Public education.

LOCAL MITIGATION PROJECTS

DES DISTRICT 6

GOAL 11 - Encourage mitigation of potentially devastating but historically less frequent hazards.

OBJECTIVE 11.3 - Identify and reduce losses from volcanic activity.

Petroleum County

Medium Priority

- Identify at risk population.

Low Priority

- Monitoring volcanic activity.



**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MITIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

**APPENDIX H
STATE PLAN REVISION LOGS**

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 1 - INTRODUCTION

Date	Sub-Section	Description of Revision	Revised By:
4/25/07	1.0	Added Tetra Tech as preparer of plan update	Tetra Tech
4/25/07	1.0	Added Communicable Disease to list of hazards profiled.	Tetra Tech
4/25/07	1.1	Added funding source for 2007 plan update	Tetra Tech
4/25/07	Table 1.2.1	Updated population figure with 2006 census estimate	Tetra Tech
4/25/07	Table 1.2.1	Added number of Tribal Reservations	Tetra Tech
4/25/07	Table 1.2.6	Added 2006 population estimates for Montana and U.S.	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 2 – PLANNING PROCESS

Date	Sub-Section	Description of Revision	Revised By:
4/25/2007	2.1	Revised details on contractor who facilitated the planning process for the plan update	Tetra Tech
4/25/2007	2.1.1	Updated involvement of Advisory Group	Tetra Tech
4/25/2007	2.1.2	Updated involvement of Stakeholders Group	Tetra Tech
4/25/2007	2.1.3	Updated involvement of Hazard Technical Groups	Tetra Tech
4/25/2007	2.1.4 & 2.1.5	Switched order of subsections 2.1.4 and 2.1.5 and renamed subsection 2.1.4 Local Involvement	Tetra Tech
4/25/2007	2.1.4	Updated Local Involvement section with description of 12 meetings held around the state	Tetra Tech
4/25/2007	2.1.5	Renamed section and provided description of Project Web Page and On-Line Survey	Tetra Tech
6/28/2007	2.1.6	New section added on Plan Review and Adoption Process. Included reference on assurances that State will continue to comply with all applicable Federal statutes and regulations during periods of grant funding.	Tetra Tech
4/25/2007	2.1.7	Updated Planning Process Structure to include how team reviewed and analyzed each section of the plan and whether or not it was revised as part of the update process.	Tetra Tech
4/26/2007	2.3	Removed reference to 2001 Montana Hazard Mitigation Plan and Montana Earthquake Hazard Reduction Program Five Year Plan. Added descriptions of other state plans and programs including: Montana COOP and COG Plans, State Human Disease and Public Health Plan, Montana Dept. Agriculture Emergency Response Plan, Montana Citizens Corps. and Montana University System PDM Plans. Added descriptions of the following local plans and programs: Local Emergency Operation Plan, Local Pandemic Influenza Plans, and, Guidelines for Montana Agricultural Emergencies for Local and Tribal Governments.	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 2 – PLANNING PROCESS

Date	Sub-Section	Description of Revision	Revised By:
4/26/2007	Tables 2.2-1 & 2.2-2	Add new responsibility of Dept. Administration. Moved Montana University System to State Government Organizations and Responsibilities. Omitted specific reference to MSU and UM on Non-Government Organizations and Responsibilities	Tetra Tech
7/9/2007	Figure 2.1-1	Added updated figure on status of approved Local PDM Plans	Tetra Tech
4/26/2007	Figure 2.1-2	Added figure showing six DES Districts	Tetra Tech
4/26/2007	Figure 2.1-3	Added new figure illustrating 2007 Planning Process Organizational Structure	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 3 – HAZARD ASSESSMENT

Date	Sub-Section	Description of Revision	Revised By
<i>TEXT CHANGES</i>			
4/30/2007	3.1.1	Added Communicable Disease to list of hazards	Tetra Tech
5/2/2007	3.1.1	Added status of approved PDM Plans	Tetra Tech
5/2/07	3.1.2.1	Indicated that state and locals validated which hazards to profile in State Plan Update	Tetra Tech
5/2/2007	3.1.2.4	Updated number of approved local PDM Plans	Tetra Tech
5/2/2007	3.1.2.5	Incorporated hazard exposure at local level	Tetra Tech
5/2/2007	3.1.3	Review of revised hazard profiles	Tetra Tech
5/2/2007	3.1.5.2	Description of local hazard assessment summary	Tetra Tech
5/3/2007	3.2.1.1	Updated values for State buildings	Tetra Tech
5/4/2007	3.2.4.1	Replaced minority statistics in Table 3.2.4-1 with narrative	Tetra Tech
5/4/2007	3.2.4.2.1	Updated statistics on elderly populations	Tetra Tech
5/4/2007	3.3.1	Added profile on communicable disease hazard	Tetra Tech
5/10/07	3.3.2.2.3	Added description of 2005 Dillon earthquake	Tetra Tech
5/10/2007	3.3.2.5	Added new section on impact of earthquakes on future development	Tetra Tech
5/15/2007	3.3.3.2.5	Updated Ice Jam numbers	Tetra Tech
6/6/2007	3.3.3.3	Updated statistics on disaster assistance from flooding	Tetra Tech
5/16/2007	3.3.3.4.1	Updated number of total dams, high hazard dams, and dam rehabilitation numbers	Tetra Tech
6/5/2007	3.3.3.4.3	Revised values for state assets vulnerable to flooding	Tetra Tech
6/5/2007	3.3.3.5	Added new section on impact of flooding on future development	Tetra Tech
6/6/2007	3.3.4.1	Updated statistics regarding hazardous material incidents	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 3 – HAZARD ASSESSMENT

Date	Sub-Section	Description of Revision	Revised By
6/6/2007	3.3.4.2	Updated statistics regarding hazardous material incidents	Tetra Tech
6/12/2007	3.3.4.4.1	Revised example to compute composite risk index with current numbers	Tetra Tech
6/6/2007	3.3.4.4.2	Revised section on local plan integration	Tetra Tech
6/6/2007	3.3.4.5	Added new section on the impact of hazardous material incidents on future development	Tetra Tech
6/7/2007	3.3.5.2	Added information on Beartooth Highway landslide	Tetra Tech
6/7/2007	3.3.5.3	Added information on disaster declaration due to a landslide in 2005.	Tetra Tech
6/7/2007	3.3.5.5	Added new section on impact of landslides on future development	Tetra Tech
	3.3.6.5	Added new section on impact of terrorism and violence on future development	Tetra Tech
	3.3.7.5	Added new section on impact of volcanic eruptions on future development	Tetra Tech
6/8/2007	3.3.8.2	Updated statistics on avalanche fatalities	Tetra Tech
	3.3.8.5	Added new section on impact of winter storms and avalanche on future development	Tetra Tech
6/11/2007	3.3.9.3	Revision to text on personal vs. farm income and the effects of drought.	Tetra Tech
6/11/2007	3.3.9.3	Added an additional SBA drought declaration assistance project by the Small Business Administration.	Tetra Tech
6/11/2007	3.3.9.4.3	Updated statistics on contribution of timber and agriculture on state land to Montana economy	Tetra Tech
	3.3.9.5	Added new section on impact of drought on future development	Tetra Tech
6/12/2007	3.3.10.1	Described Enhanced Fujita tornado scale	Tetra Tech
6/12/2007	3.3.10.2	Updated tornado and lightning statistics through 2006	Tetra Tech
6/14/2007	3.3.11.1	Updated wildfire statistics	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 3 – HAZARD ASSESSMENT

Date	Sub-Section	Description of Revision	Revised By
	3.3.10.5	Added new section on impact of severe thunderstorms, hail, wind and tornadoes on future development	Tetra Tech
6/14/2007	3.3.11.4	Added climate change and insect disease as contributors to wildfire vulnerabilities	Tetra Tech
	3.3.11.5	Added new section on impact of wildland and rangeland fire on future development	Tetra Tech
FIGURE CHANGES			
5/4/2007	Figure 3.2.4-1	Eliminated existing figure on population	Tetra Tech
5/4/2007	Figure 3.2.4-1	Added new figure on population projections by county	Tetra Tech
5/4/2007	Figure 3.2.4-2	Added new figure on projections for elderly population by county	Tetra Tech
5/3/2007	Figure 3.2.3-1	Updated gross state product pie chart	Tetra Tech
5/3/2007	Figure 3.2.3-2	Updated figure on personal income by county	Tetra Tech
5/3/2007	Figure 3.2.3-3	Added figure on percent change in personal income	Tetra Tech
5/16/2007	Figure 3.3.3-3	Updated ice jam figure with more recent data	Tetra Tech
6/6/2007	Figure 3.3.4-1	Created new pie chart with updated data	Tetra Tech
6/8/2007	Figure 3.3.8-1	Updated figure on avalanche fatalities by state	Tetra Tech
6/11/2007	Figure 3.3.9-5	New figure showing drought conditions in May, July, and September for 2004-2007	Tetra Tech
6/28/2007	Figure 3.3.10-1	Revised tornado figure with updated data	Tetra Tech
6/28/2007	Figure 3.3.10-2	Revised hail figure with updated data	Tetra Tech
6/28/2007	Figure 3.3.10-3	Revised wind figure with updated data	Tetra Tech
6/28/2007	Figure 3.3.10-4	Revised tornado, hail, wind composite frequency figure with updated data	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 3 – HAZARD ASSESSMENT

Date	Sub-Section	Description of Revision	Revised By
6/14/2007	Figure 3.3.11-3	New figure showing WUI areas in Montana	Tetra Tech
6/14/2007	Figure 3.3.11-4	New figure showing graph of WUI vs. Non-WUI fires from 1996-2006.	Tetra Tech
TABLE CHANGES			
5/2/2007	Table 3.1.2-1	Updated with Communicable Disease and Biological Hazard vulnerability assessment methods	Tetra Tech
5/3/2007	Table 3.2.1-1	Updated Content and Structure Value by Agency	Tetra Tech
5/3/2007	Table 3.2.1-2	Updated values for major State buildings/complex	Tetra Tech
5/3/2007	Table 3.2.1-3	Updated acreages for Montana State Trust Land	Tetra Tech
5/3/2007	Table 3.2.2-5	Updated with population statistics	Tetra Tech
5/3/2007	Table 3.2.2-6	Updated top facilities for waste emissions	Tetra Tech
5/3/2007	Table 3.2.3-1	Updated highest/lowest population by county	Tetra Tech
5/4/2007	Table 3.2.4-1	Updated general population statistics	Tetra Tech
5/4/2007	Table 3.2.4-2	Updated counties with highest/lowest populations	Tetra Tech
6/7/2007	Table 3.3.2-5	Updated state employee totals for counties in earthquake zone	Tetra Tech
5/15/2007	Tables 3.3.3-1 and 3.3.3-2	Added ice jam statistics (streams and cities) east and west of Continental Divide	Tetra Tech
5/15/2007	Table 3.3.3-3	Updated flood declarations	Tetra Tech
6/6/2007	Table 3.3.3-4	Updated flood damages for 10 year period.	Tetra Tech
5/15/2007	Table 3.3.3-5	Updated communities with highest flood insurance claims	Tetra Tech
6/11/2007	Table 3.3.3-6	Updated number of federal, state, local, private, and utility dams	Tetra Tech
5/16/2007	Table 3.3.3-7	Updated list of dams requiring further analysis or rehabilitation.	Tetra Tech
6/5/2007	Table 3.3.3-8	Updated building and content values of state assets in floodplain	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 3 – HAZARD ASSESSMENT

Date	Sub-Section	Description of Revision	Revised By
6/6/2007	Table 3.3.4-1	Updated hazardous material incidents by mode of transportation	Tetra Tech
6/11/2007	Table 3.3.4-2	Updated number and quantity of transportation and fixed spills by product	Tetra Tech
6/11/2007	Table 3.3.4-3	Updated hazardous material incident types and receptors	Tetra Tech
6/12/2007	Table 3.3.4-7	Updated data on counties with high or moderate hazardous material composite index	Tetra Tech
6/7/2007	Table 3.3.6-3	Added recent disaster declarations	Tetra Tech
6/7/2007	Table 3.3.7-4	Updated building values and state employee count	Tetra Tech
6/8/2008	Table 3.3.8-1	Updated winter storm losses	Tetra Tech
6/8/2008	Table 3.3.8-3	Updated state declared winter storm disasters	Tetra Tech
6/8/2008	Table 3.3.8-4	Updated loss claims for state facilities from extreme winter weather	Tetra Tech
6/11/2007	Table 3.3.9-4	New table with 2006 Montana Natural Disaster Determinations	Tetra Tech
6/11/2008	Table 3.3.9-5	Updated USDA payments for drought assistance	Tetra Tech
6/11/2007	Table 3.3.9-5	Updated counties list of highest percentage farm income to illustrate effects of drought	Tetra Tech
6/12/2007	Table 3.3.10-1	Revised to compare Fujita and Enhanced Fujita tornado scales	Tetra Tech
6/12/2007	Table 3.3.10-2	New table to present Enhance Fujita tornado scale damage indicators	Tetra Tech
6/12/2007	Table 3.3.10-4	Updated table with events through 2006	Tetra Tech
6/13/2007	Table 3.3.10-6	Updated frequency table for tornado, wind and hail events	Tetra Tech
6/14/2007	Table 3.3.10-7	Recalculated hazard frequency based on results in Table 3.3.10-6	Tetra Tech
6/11/2007	Table 3.3.10-8	Updated and added losses from wind and hail to state facilities	Tetra Tech
6/12/2007	Table 3.3.10-9	Updated hazard frequency, building and content value, and employee county	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 3 – HAZARD ASSESSMENT

Date	Sub-Section	Description of Revision	Revised By
6/13/2007	Table 3.3.11-2	Updated wildfire number and acreage statistics	Tetra Tech
6/13/2007	Table 3.3.11-3	Updated wildfire disasters	Tetra Tech
6/13/2007	Table 3.3.11-5	Updated acreage of cropland and CRP	Tetra Tech
6/13/2007	Table 3.3.11-6	Updated building and content values for state facilities most prone to wildfire	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 4 – MITIGATION STRATEGY

Date	Sub-Section	Description of Revision	Revised By
<i>TEXT CHANGES</i>			
7/12/07	4.1	Update process for goals, objectives and mitigation actions. Revised goals and objectives to present new priorities and additional projects. Referenced Appendix B through G which contain listings of mitigation projects from Local PDM Plans.	Tetra Tech
7/12/2007	4.3	Revised State Capability Assessment by eliminating Private Advisory Group.	Tetra Tech
7/12/2007	4.3.1	Added District DES Representative to State Mitigation Structure	Tetra Tech
7/12/2007	4.3.2	Updated PDM Policies, Programs and Capabilities by giving current status of approved Local Plans. Revised statistics on amount paid out in flood insurance claims, number of policies, and value of insured properties. Revised statistics for Dam Safety Program. Added section on National Weather Service Initiatives. Removed historical program description.	Tetra Tech
7/12/2007	4.3.5	Added discussion on new legislation to avoid future development in hazard prone areas, i.e. wildland-urban interface.	Tetra Tech
<i>TABLE CHANGES</i>			
7/12/2007	Table 4.1-1	Revised state-wide initiatives to reflect new mitigation projects.	Tetra Tech
7/21/2007	Table 4.1-2	Added table of prioritized state-specific mitigation projects	Tetra Tech
7/12/2007	Table 4.3-1	Added table to present status of funded PDM-C projects	Tetra Tech
7/12/2007	Table 4.3-2	Updated CRS status of participating communities	Tetra Tech
7/12/2007	Table 4.3-3	Updated status of communities not participating in the NFIP	Tetra Tech
7/13/2007	Table 4.4-1	Updated growth policy and subdivision requirement to address WUI by 2009	Tetra Tech
<i>FIGURE CHANGES</i>			
7/12/2007	Figure 4.3-1	Updated figure showing Planning Status of Montana Counties	Tetra Tech
7/12/2007	Figure 4.3-2	Created new figure to show revised status of NFIP program in Montana	Tetra Tech
7/12/2007	Figure 4.3-3	Created new figure showing revised status of NFIP communities not participating in program	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 4 - MITIGATION STRATEGY

Date	Sub-Section	Description of Revision	Revised By
7/12/2007	Figure 4.3-4	Removed Montana Mitigation Project figure and replaced with Table 4.3-1	Tetra Tech
7/12/2007	Figure 4.3.-4	Added figure showing Montana StormReady communities	Tetra Tech
7/12/2007	Figure 4.3-5	Added figure showing NOAA Weather Radio coverage in northeast Montana.	Tetra Tech
7/12/2007	Figure 4.4-1	Updated figure on Montana communities with local building codes	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 5 – PLAN AND PROJECT COORDINATION

Date	Sub-Section	Description of Revision	Revised By:
7/12/2007	5.1	Revised statistics on approved and draft Local PDM Plans	Tetra Tech
7/12/2007	5.1.1	Updated funding status for Local PDM Plans	Tetra Tech
7/12/2007	5.1.2	Updated Technical Assistance section	Tetra Tech
7/12/2007	5.1.3	Eliminated recruitment section since all Montana jurisdictions are participating in PDM initiative	Tetra Tech
7/12/2007	5.2	Updated the time required for FEMA review of Local PDM Plans. Updated local plan integration into State Plan	Tetra Tech
7/12/2007	Table 5.2-1	Updated table to reflect current dates of approval/integration of Local plans	Tetra Tech
7/21/2007	Table 5.3-1	Added project ranking for planning projects.	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 6 – PLAN MAINTENANCE PROCEDURES

Date	Sub-Section	Description of Revision	Revised By:
7/12/2007	6.1	Updated plan evaluation and maintenance procedures. Included section on approach from past plan and revised approach for next three year cycle.	Tetra Tech
7/19/2007	6.2	Updated project monitoring procedures. Included section on approach from past plan and revised approach for next three year cycle.	Tetra Tech

**MONTANA STATE PDM PLAN
REVISION LOG**

SECTION 7 – REFERENCES AND FOOTNOTES

Date	Sub-Section	Description of Revision	Revised By:
7/20/2007	7.1	Updated references on assets and population (Section 3.1 & 3.2)	Tetra Tech
7/20/2007	7.2	Added references on communicable disease hazard (Section 3.3.1)	Tetra Tech
7/20/2007	7.3	Updated references on earthquake hazard (Section 3.3.2)	Tetra Tech
7/20/2007	7.4	Updated references on flooding hazard (Section 3.3.3)	Tetra Tech
7/20/2007	7.5	Updated references on hazardous material incident hazard (Section 3.3.4)	Tetra Tech
7/20/2007	7.6	Updated references on landslide hazard (Section 3.3.5)	Tetra Tech
7/20/2007	7.7	Updated references on terrorism and violence hazard (Section 3.3.6)	Tetra Tech
7/20/2007	7.8	Updated references on volcanic eruption hazard (Section 3.3.7)	Tetra Tech
7/20/2007	7.9	Updated references on winter storm/avalanche hazard (Section 3.3.8)	Tetra Tech
7/20/2007	7.10	Updated references on drought hazard (Section 3.3.9)	Tetra Tech
7/20/2007	7.11	Updated references on thunderstorms, hail, wind, tornado hazard (Section 3.3.10)	Tetra Tech
7/20/2007	7.12	Updated references on wildfire hazard (Section 3.3.11)	Tetra Tech
7/20/2007	7.13	Updated footnote references (Sections 1, 2 and 4)	Tetra Tech
7/20/2007	7.14	Added references on potential loss estimates from local plans (Section 3.3)	Tetra Tech

**2007 UPDATE TO THE STATE OF MONTANA
MULTI-HAZARD MTIGATION PLAN AND
STATEWIDE HAZARD ASSESSMENT**

**APPENDIX I
LOCAL PLAN INDEX**

LOCAL PLAN INDEX

For electronic users of the State Plan, the following index provides access to County and Tribal PDM Plans for 59 of Montana's 62 jurisdictions. The index is provided according to DES District with the status of each plan indicated as either: FEMA Approved Plan, FEMA Reviewed Approvable Plan, Draft Plan, or No Plan Available. The Table of Contents from each plan is provided as an electronic link. This link provides access to other plan sections.

DES District 1

Butte Silver Bow County – FEMA Approved Plan

- [Table of Contents](#)

Confederate Salish and Kootenai Tribe (Flathead Reservation) – FEMA Approved Plan

- [Table of Contents](#)

Deer Lodge County – FEMA Approved Plan

- [Table of Contents](#)

Flathead County – Draft Plan

- [Table of Contents](#)

Granite County – FEMA Approved Plan

- [Table of Contents](#)

Lake County – FEMA Approved Plan

- [Table of Contents](#)

Lincoln County – FEMA Approved Plan

- [Table of Contents](#)

Mineral County – FEMA Approved Plan

- [Table of Contents](#)

Missoula County – FEMA Approved Plan

- [Table of Contents](#)

Powell County – FEMA Approved Plan

- [Table of Contents](#)

Ravalli County – FEMA Approved Plan

- [Table of Contents](#)

Sanders County – Draft Plan

- [Table of Contents](#)

DES District 2

Blackfeet Reservation – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Blaine County – FEMA Approved Plan

- [Table of Contents](#)

Cascade County – No PDM Plan Available

Chouteau County – No PDM Plan Available

Fort Belknap Reservation – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Glacier County – FEMA Approved Plan

- [Table of Contents](#)

Hill County – FEMA Approved Plan

- [Table of Contents](#)

Liberty County – Draft Plan

- [Table of Contents](#)

Pondera County – FEMA Approved Plan

- [Table of Contents](#)

Rocky Boy's Reservation – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Toole County – Draft Plan

- [Table of Contents](#)

DES District 3

Beaverhead County – FEMA Approved Plan

- Table of Contents

Broadwater County – FEMA Approved Plan

- Table of Contents

Gallatin County – FEMA Approved Plan

- Table of Contents

Jefferson County – FEMA Approved Plan

- Table of Contents

Lewis and Clark County – FEMA Approved Plan

- Table of Contents

Madison County – FEMA Approved Plan

- Table of Contents

Meagher County – No PDM Plan Available

Park County – FEMA Approved Plan

- Table of Contents

Sweetgrass County – FEMA Approved Plan

- Table of Contents

DES District 4

Carter County – FEMA Approved Plan

- [Table of Contents](#)

Custer County – FEMA Approved Plan

- [Table of Contents](#)

Dawson County – FEMA Approved Plan

- [Table of Contents](#)

Fallon County – FEMA Approved Plan

- [Table of Contents](#)

Garfield County – FEMA Approved Plan

- [Table of Contents](#)

McCone County – FEMA Approved Plan

- [Table of Contents](#)

Prairie County – FEMA Approved Plan

- [Table of Contents](#)

Powder River County – FEMA Approved Plan

- [Table of Contents](#)

Richland County – FEMA Approved Plan

- [Table of Contents](#)

Wibaux County – FEMA Approved Plan

- [Table of Contents](#)

DES District 5

Big Horn County – FEMA Approved Plan

- [Table of Contents](#)

Carbon County – FEMA Approved Plan

- [Table of Contents](#)

Crow Reservation – Draft Plan

- [Table of Contents](#)

Golden Valley County – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Musselshell County – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Northern Cheyenne Reservation – Draft Plan

- [Table of Contents](#)

Rosebud County – Draft Plan

- [Table of Contents](#)

Stillwater County – Draft Plan

- [Table of Contents](#)

Treasure County – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Wheatland County – FEMA Reviewed Approval Plan

- [Table of Contents](#)

Yellowstone County – FEMA Approved Plan

- [Table of Contents](#)

DES District 6

Daniels County – FEMA Approved Plan

- Table of Contents

Fergus County – Draft Plan

- Table of Contents

Fort Peck Reservation – FEMA Approved Plan

- Table of Contents

Judith Basin County – FEMA Reviewed Approval Plan

- Table of Contents

Petroleum County – FEMA Approved Plan

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Phillips County – FEMA Approved Plan

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Roosevelt County – FEMA Approved Plan

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Sheridan County – FEMA Approved Plan

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Valley County – FEMA Approved Plan

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